Agriculture Canada

SOILS OF THE SUSSEX AREA OF NEW BRUNSWICK

Canada

Tenth Report of the
New Brunswick Soil Survey

SOILS OF THE SUSSEX AREA OF NEW BRUNSWICK

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Truro, Nova Scotia

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SUMMARY

The soil survey of the Sussex area covers 75 950 ha of land in southeastern New Brunswick. Two-thirds of the area is covered by forest with the remainder used for agriculture, mainly forage crops. The crop area devoted to agriculture has diminished in the past 35 years by approximately 58%.

The soils of the area are developed mainly from ground moraine derived from the underlying bedrock. Glaciofluvial sand and gravel deposits, and silty and clayey glaciolacustrine deposits are located along the valley sides. The present floodplains contain fluvial sand, silt, and gravels.

Two ecoregions, the Magaguadavic-Hillsborough and the Maritime Uplands are located in the survey area. The Magaguadavic-Hillsborough ecoregion contains red oak and black cherry throughout, with balsam fir, hemlock, white and red spruce, and white pine in the valleys. The uplands sand and gravel deposits are home to white pine, balsam fir, and black spruce. The Maritime Uplands is dominated by beech, sugar maple, and yellow birch. White pine, white spruce, and black spruce thrive in the valleys.

The Kennebecasis Valley divides the area into two upland regions. The northern region consists of three uplands belts divided by valleys. The southern region contains four distinct areas. The southeastern area is moderately rolling to hilly, the south-central is undulating to gently rolling, and the southwestern is undulating. The fourth area is a belt of gently to strongly rolling terrain separating the south-central and southwestern areas.

Drainage of the area is provided by the Kennebecasis River and its tributaries.

ACKNOWLEDGMENTS

The following persons are gratefully acknowledged: G.J. Beke and J.L. Nowland, for suggestions on mapping; John H. Day, for editing and for advice on writing the manuscript; Donald Finck, for the initial typing of the manuscript; Sylvie Parent, for typing the final draft; David Langille, for analyses in part of soil samples and compilation of parts of the report, in particular the winter wheat and spring cereal guidelines; K.K. Langmaid, for comments and advice during correlation of the survey; H.W. Rees, for editing and for correlation of the survey; Greg Taylor, for drafting figures before they were submitted to the Cartography Section of the Land Resource Research Institute, Ottawa.

The soils map, figures, and diagrams were drafted by the Cartography Section, and the soils were analyzed in part by the Analytical Section under the supervision of B.H. Sheldrick, Land Resource Research Institute, Ottawa.

Assistance during fieldwork was provided by Kevin Little, Donald Comeau, Scott Dickie, and Paul Martin.

The soils were mapped by David Langille and Delmar Holmstrom.

HOW TO USE THE REPORT

This report on the soils of the Sussex area is intended to serve several groups of readers: agricultural extension personnel, for farm management planning and conservation of the soil resources; planners, for assisting in rating areas for housing or roads; and research scientists, for locating areas for research projects or for extrapolating results from test areas to untested but similar areas.

How to identify a soil

Use the Soil Map Index to locate the area of interest. When you have located the correct soil map, you will note that the area of interest has been labeled. That symbol represents a map unit that is described in the Map Unit Legend.

Finding information

Each map unit has information provided in various parts of the report. The map unit descriptions are given in general terms, but information on the potential uses of the soils is presented in the section entitled "Map unit interpretations." For specific information on chemical and physical analysis the reader is directed to the section entitled "Soil profile descriptions with chemical and physical analysis".

Classifying a soil

For individuals who wish to locate a soil in a map unit described in this report, a key has been provided. To classify a soil, first determine the mode of deposition and texture of the parent material (subsoil). This may be adequate to place the soil in a map unit group; if at this point you cannot place the soil in a map unit group, you will have to determine the color of the parent material and the geology of the coarse fragments.

The map units within a map unit group are divided according to texture, depth, and drainage. No group of map units contains individual map units for all possible combinations, and therefore the description of each map unit may be based on a range of one or more of the criteria stated.

Limitations

The fieldwork that began in 1978 for this survey ended in 1982. Unless otherwise indicated, all statements in the report refer to conditions in the survey area at that time.

The variability of soils wihin a map unit has been described. This report and the enclosed maps serve only as a guide for planning purposes. On-site investigations are required for specific interpretations and use of the soil at a specific site.

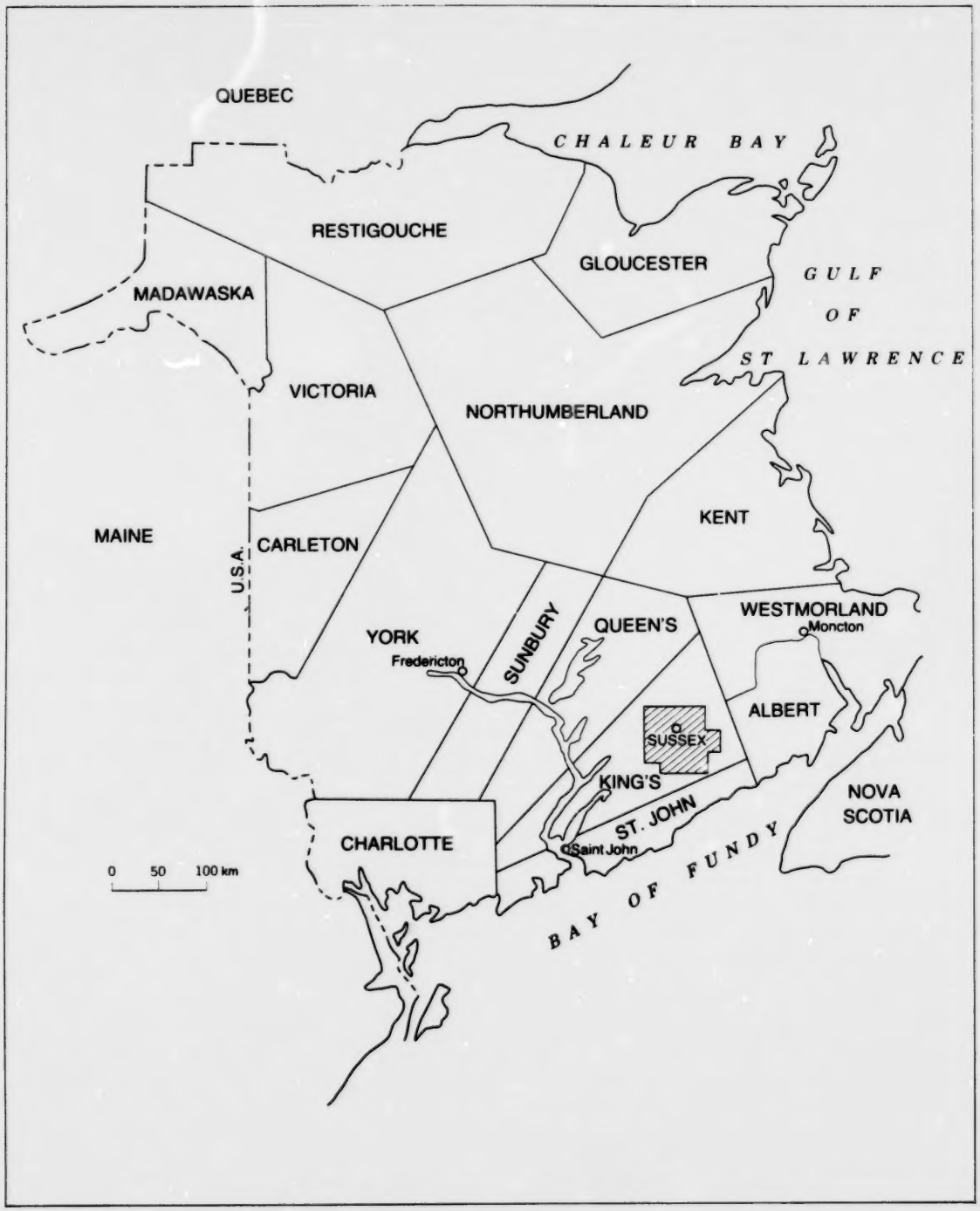
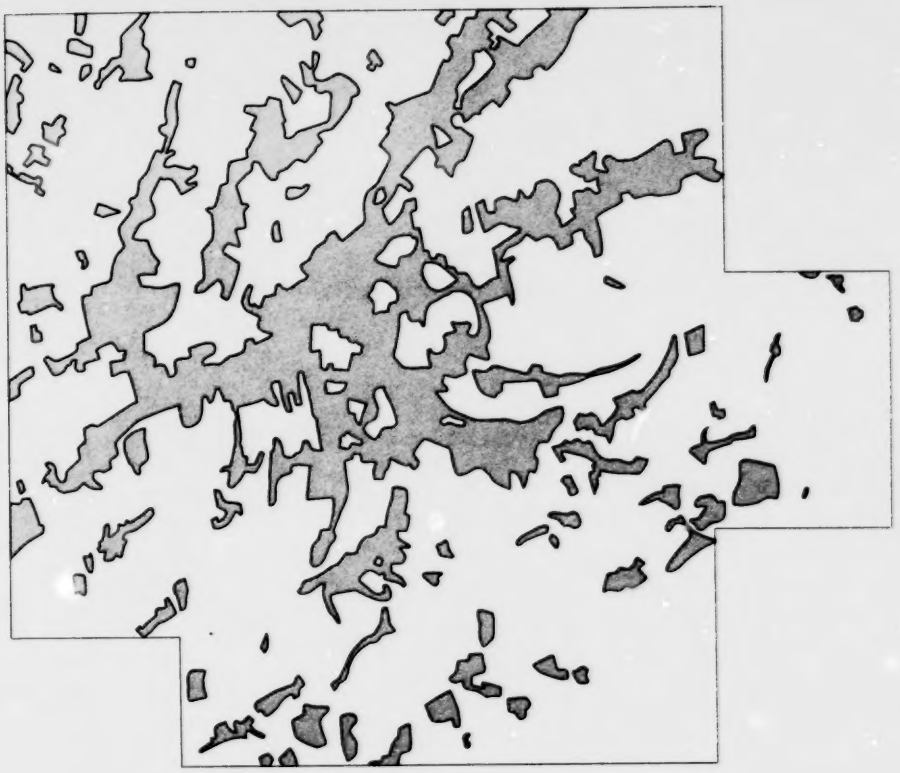


Fig. 1. Location of the survey area.



The dark areas indicate cleared land.

The light areas indicate land under forest cover.

Base scale 1:250,000, N.T.S. map.

Cleared areas interpreted from 1976 & 1977 1:20,000 aerial photos.

Fig. 2. Land use of the survey area.

GENERAL DESCRIPTION OF THE AREA

LOCATION AND EXTENT

The survey area comprises a section of Kings County, N.B. (Fig. 1) bounded by 45°51' to 45°35'N and 66°40' to 66°15'W. The area covered by the survey is 75 950 ha and includes parts of Sussex, Studholm, Waterford, Hammond, and Cardwell parishes.

PRESENT LAND USE

Forests cover approximately two-thirds of the survey area (Fig. 2). The remainder is used primarily for forage crops, although small amounts of corn, cereal grains, horticultural crops, and sod are also produced.

The area of agricultural holdings in Kings County has diminished from 57 516 ha in 1941 to 24 245 ha in 1976, a decrease of about 58% (Table 1).

TRANSPORTATION

The survey area has an excellent system of roads (Fig. 3). Highway 2 connects the area to Moncton to the east and Fredericton to the north; Highway 1 provides a direct route to the port city of Saint John. Highway 111 permits travel to St. Martins on the Bay of Fundy coastline. The Canadian National Railway connects the area with Moncton and Saint John.

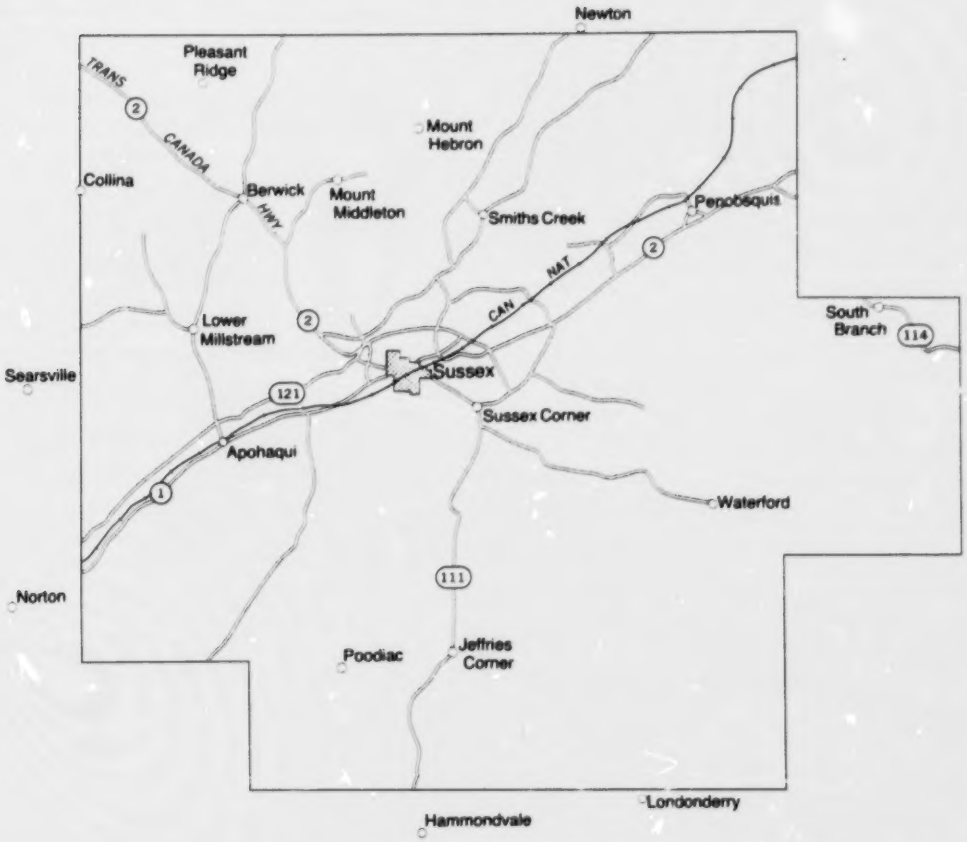
FACTORS AFFECTING SOIL FORMATION

Soil formation and development are influenced by parent material and geology, climate, vegetation, and topography. In this section, these factors as found in the survey area are discussed.

PARENT MATERIAL

The morainal parent material in the survey area has been derived largely from the underlying bedrock. This material was transported across short distances by glaciers during the Pleistocene era. The glacier crushed, mixed, and then redeposited the material.

During the Pleistocene era, other parent materials also were deposited. The sand and gravel glaciofluvial deposits constitute kame terraces, located along the valley sides, and eskers. The silty and clayey glaciolacustrine deposits were largely confined



Redrawn from N.T.S. map 21H at scale 1:250,000.

Fig. 3. Main transportation routes, villages, and towns in the Sussex project area.

Table 1. Agricultural holdings and improved farm acreage in Kings County.

Year	Agricultural holdings	Total farm area (ha)	Improved Land Crops (ha)	Pasture (ha)	Total (ha)
1976	667	67 930	16 032	6 711	24 245
1971	793	81 165	15 268	8 151	25 916
1966	1036	95 519	18 297	10 667	30 987
1961	1344	119 041	21 909	11 085	34 418
1956	1786	136 314	25 673	15 017	42 416
1951	1928	147 053	26 991	15 762	43 931
1941	2578	178 479	35 272	20 034	57 516

Based on Dept. of Agriculture and Rural Development, Agriculture statistics, Fredericton, N.B., 1977.

to the Kennebecasis Valley, which borders the present floodplain of the Kennebecasis River.

The most recent parent materials in the area are those deposited by present streams and rivers. These fluvial soils of sand, silt, and gravel are located on the floodplains of the waterways.

GEOLOGY

The bedrock geology of the survey area is best explained by Fig. 4, which gives name, age, characteristics, and locations of the various geological formations (McCutcheon 1978; Stewart 1941; Alcock and McKenzie 1946; Evans and Alcock 1944). More detailed information is available for the area of Apohaqui-Markhamville in the map report by McCutcheon (1978).

CLIMATE

The climate of an area governs the formation of the soil and the life it supports. Although the regional climate generally favors podzolization and gleyzation, local climatic variations modify the intensity of the process.

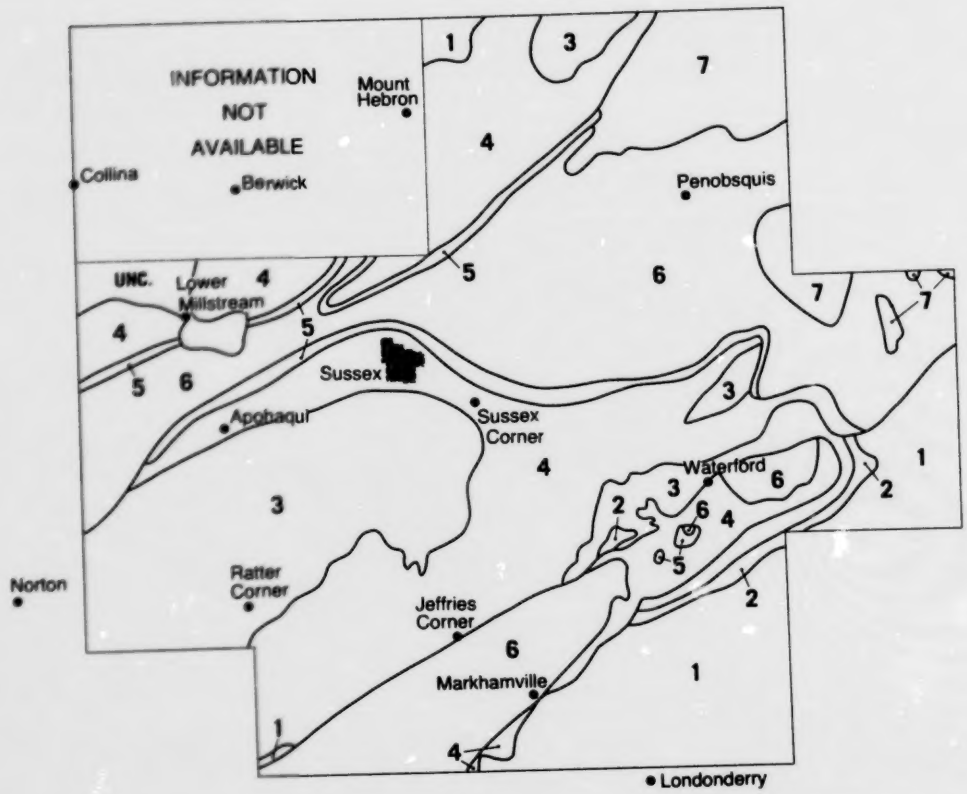
There are only two climatic stations in or near the area. The Sussex station lies within the area, and Searsville is located approximately 15 km west of Sussex, just outside the survey area.

A variation in precipitation occurs between the Searsville and Sussex stations (Table 2). Searsville receives 102 mm more precipitation and 24 more days with precipitation each year than does Sussex.

There is a difference of slightly more than 0.1°C in the mean daily temperature of the two stations. In addition, the average frost-free period (Table 3), differs by only 2 days: Sussex averages 100 and Searsville averages 98 frost-free days per year.

VEGETATION

The survey area contains two distinct ecoregions (Fig. 5) as classified by Loucks (1961), the Magaguadavic-Hillsborough and the Maritime Uplands. The forests of Magaguadavic-Hillsborough ecoregion contain a number of tree species. Red oak and black cherry are scattered throughout the region. The valleys are dominated by balsam fir, hemlock, white spruce, red spruce, and white pine. On sand and gravel deposits as well as in the uplands, white pine, balsam fir, and black spruce thrive.



Based on maps 643A (1941), 829A (1944) and 845A (1946) of Canada Department of Mines and Resources

LEGEND

PENNSYLVANIAN

7 Petitcodiac Group: grey sandstone, shale and conglomerate

MISSISSIPIAN AND (?) PENNSYLVANIAN

6 Hopewell Group: red conglomerate, sandstone and shale

MISSISSIPIAN

5 Windsor Series: mainly limestone and gypsum

4 Moncton Group: red feldspathic grit, grey to red conglomerate, sandstone and shale

3 Albert Formation: grey shale, sandstone, conglomerate and limestone

2 Memramcook Formation: mainly red to grey conglomerate, sandstone and shale

PRE-CARBONIFEROUS

1 Highly altered sedimentary, volcanic and granitic intrusives

Base redrawn from N.T.S. map 21H at scale 1:250,000

Information based on geology maps, 1:50,000 scale listed above

Fig. 4. Bedrock geology of survey area.

Table 2. Temperature and precipitation data for Searsville (Se) and Sussex (Su).

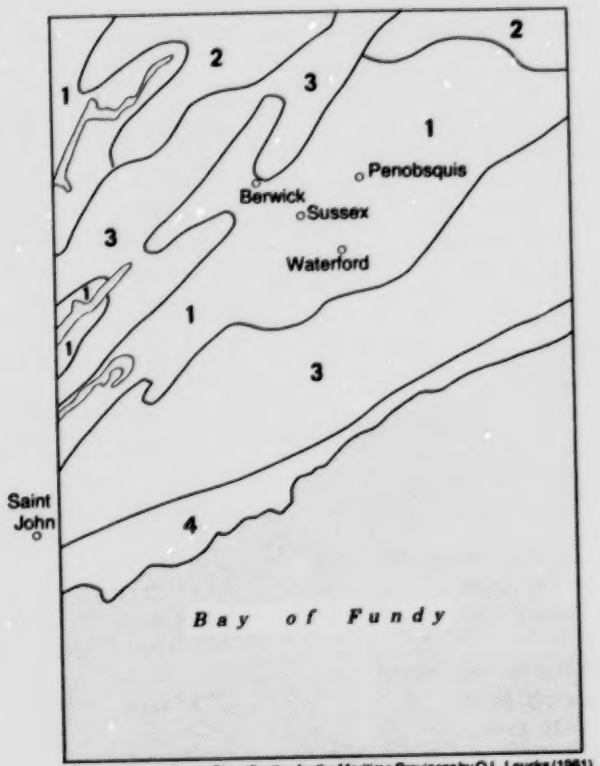
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Daily maximum temperature (°C)	Se	-3.2	-2.3	2.4	8.8	15.9	20.9	24.0	23.2	18.6	12.5	6.0	-0.8	10.5
	Su	-2.5	-1.7	3.0	9.4	16.6	21.7	24.9	24.1	19.4	13.4	6.8	-0.3	11.2
Daily minimum temperature (°C)	Se	-12.4	-12.3	-6.5	-1.0	4.0	9.3	12.6	12.1	7.8	3.3	-1.9	-9.7	0.4
	Su	-13.7	-13.5	-7.2	-1.5	3.6	8.7	12.1	11.2	6.8	1.9	-2.6	-10.5	-0.4
Daily temperature (°C)	Se	-8.0	-7.5	-2.2	3.8	9.9	15.0	18.2	17.6	13.1	7.7	2.0	-5.5	5.3
	Su	-8.1	-7.6	-2.1	4.0	10.1	15.2	18.5	17.7	13.1	7.7	2.1	-5.4	5.4
Rainfall (mm)	Se	607	333	470	598	923	811	1084	909	985	1048	852	663	9383
	Su	547	401	443	618	738	725	898	751	880	920	875	694	8490
Snowfall (cm)	Se	56.2	49.6	46.9	16.3	2.0	0.0	0.0	0.0	0.0	1.6	15.6	54.9	243.1
water equivalent	Su	53.7	44.5	35.3	14.7	0.4	0.0	0.0	0.0	0.0	2.4	14.0	47.9	212.9
Total precipitation (mm)	Se	1178	965	905	802	813	865	1021	826	937	1061	1060	1236	11 669
	Su	1084	846	796	765	742	725	989	751	880	944	1020	1175	10 626
Average number of days with rain	Se	5	3	5	10	12	12	11	10	10	10	10	6	104
	Su	4	3	5	7	9	9	8	7	7	8	8	5	80
Average number of Days with Snow	Se	7	6	5	3	0	0	0	0	0	1	2	7	31
	Su	7	6	5	2	0	0	0	0	0	0	2	7	29
Average number of days with precipitation	Se	11	8	9	12	12	12	11	10	10	11	12	12	130
	Su	10	8	9	9	9	9	8	7	7	8	10	11	106

Based on Environment Canada, Canadian climate normals, temperature and precipitation, 1951-1980, Atlantic Provinces. Ottawa, Ont., 1982.

Table 3. Frost-free data for Searsville and Sussex.

	Searsville	Sussex
Average based on		
1951-1980 period (years)	14	30
Frost-free period (days)	100	98
Last frost in spring	4 June	5 June
First frost in full	13 Sept.	12 Sept.
Extremes based on		
full period of record (years)	14	83
Last spring frost		
earliest	21 May	6 May
latest	26 June	2 July
First fall frost		
earliest	25 Aug.	11 Aug.
latest	27 Sept.	2 Oct.
Longest frost-free period		
Last spring frost	21 May	6 May
First fall frost	13 Sept.	23 Sept.
days	115	139
Shortest frost-free period		
Last spring frost	10 June	2 July
Frist fall frost	1 Sept.	31 Aug.
days	82	59

Environment Canada, Canadian climate normals, temperature and precipitation, 1951-1980, Atlantic Provinces. Ottawa, Ont., 1982.



Redrawn from *A Forest Classification for the Maritime Provinces* by O.L. Loucks (1961).

LEGEND

1 Sugar Maple - Hemlock-Pine Zone
Magaquadavic-Hillsborough Ecoregion

2 Red Spruce - Hemlock-Pine Zone
Maritime Lowlands Ecoregion

3 Sugar Maple - Yellow Birch-Fir Zone
Maritime Uplands Ecoregion

4 Spruce - Fir Coast Zone
Fundy Bay Ecoregion

Water

Fig. 5. Vegetation of survey area.

Hardwood species of beech, sugar maple, and yellow birch dominate the Maritime Uplands ecoregion. On steep slopes, mixed woods of red spruce, white pine, white spruce, balsam fir, yellow birch, sugar maple, and red maple occur. The species dominating the valley floors are white pine, white spruce, and black spruce.

RELIEF AND DRAINAGE

The Kennebecasis Valley divides the survey area into two upland regions (Fig. 6). The gently to moderately rolling upland in the northern area is divided by river valleys into three belts. The first of these belts is a long smooth ridge extending between the Kennebecasis and Smith Creek valleys. Its highest point is at Mount Pisgah (250 m). The second belt of rolling upland is found west of the Smith Creek Valley and includes Jordan Mountain and Mount Hebron. The third belt is located west of Millstream Valley, in the northwestern part of the survey area. It includes the large dome-shaped Kierstead Mountain and the smaller Snider Mountain.

The uplands south of the Kennebecasis Valley contain four distinct areas. The eastern section, bounded by Jeffries Corner and Sussex Corner in the west and Lissonville in the south, is composed of moderately rolling to hilly topography. It is dissected by numerous, narrow, elongated, steep-sided valleys. Elevations range from 250 to 360 m.

A second upland area, located approximately south of the line formed by Walker Settlement, Markhamville, and Cassidy Lake, has the highest elevation in the survey area (403 m) just north of Londonderry. Viewing this area from a vantage point reveals that most of the ridges and high points are approximately at the same level, and that the land surface forms an undulating or gently rolling plateau.

The third upland area is a belt of rough terrain extending in a northwesterly direction west of the plateau described above. Located west of a line between Cassidy Lake and Ratter Corner, the upland area is bordered by Jeffries Corner to the east and Wards Creek to the north. The topography is gently to strongly rolling, with the highest elevations at Vinegar Hill (345 m).

The fourth upland area is a plateau extending roughly west of a line formed by Ratter Corner, Southfield, and Sussex. Here the topography is undulating, with elevations ranging between 60 and 160 m.

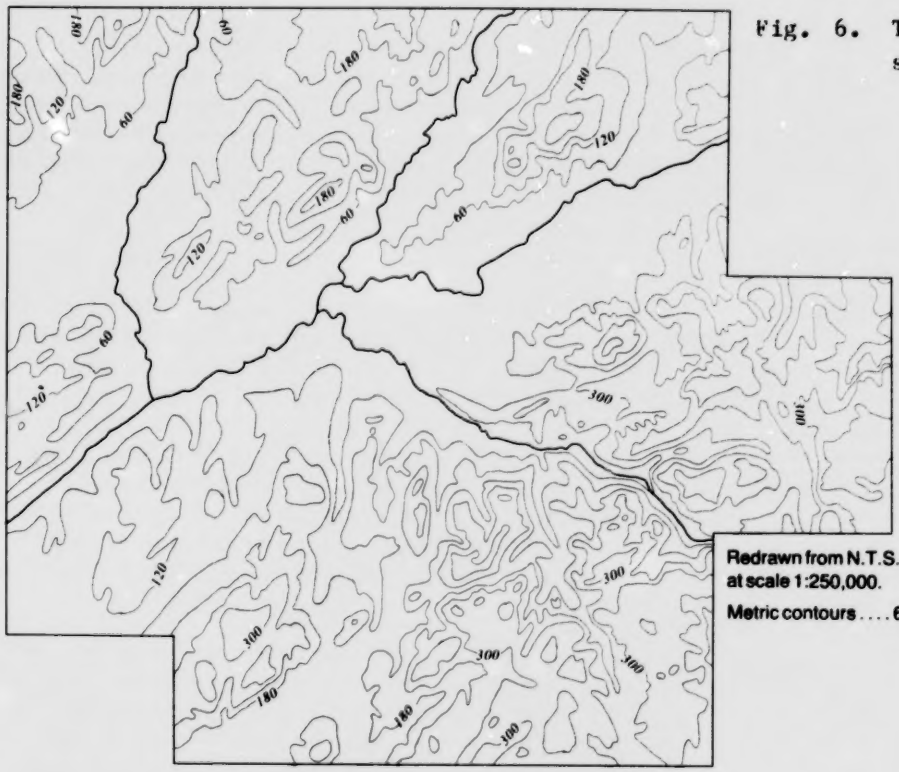


Fig. 6. Topography of survey area.

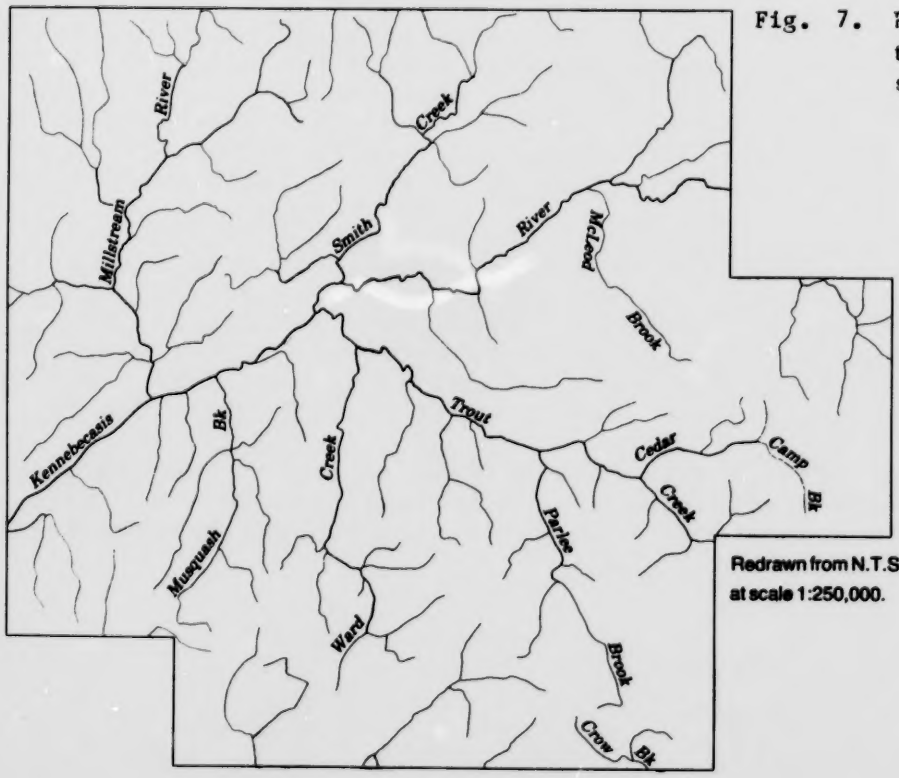


Fig. 7. Rivers and tributaries of survey area.

Drainage in the survey area is provided by the Kennebecasis River and its tributaries (Fig. 7). The Kennebecasis River runs southwest from Penobsquis to Apohaqui. It is joined by Trout and Smith creeks near Sussex and by the Millstream River at Apohaqui.

Trout Creek and its tributaries, Wards Creek and Parleeville Brook, drain the southern section of the survey area. The northwestern area is drained by the Millstream River and the northeastern section by Smith Creek.

SURVEYING METHODS

MAPPING METHODS

The soils in the area were mapped at two levels of intensity. On agricultural land, they were mapped at 1:20 000 scale (one examination for every 4-8 ha). Where forest vegetation was established or the agricultural land was abandoned, they were mapped at a scale of 1:50 000 (one examination for every 40-120 ha). Urban areas greatly modified by humans were not examined.

At each examination, parent material, drainage, depth to constricting or contrasting material, texture of soil material overlying the constricting or contrasting material, stoniness, topography, and rockiness were noted. At most sites, additional information was recorded on other soil and vegetation parameters.

The aerial photographs of the area were examined by stereoscopic methods, and lines representing soil boundaries were drawn. These lines were checked in the field, and additional boundaries were drawn based upon the field investigations.

MAPPING UNITS

The delineation of map units is not an exact science. The decision to outline and label an area is based on interpretation and extrapolation of soil, landscape, and vegetation features. Map unit boundary lines serve as guides for separating properties and conditions of one map unit from another. They are not exact lines but rather approximations of the location on the land where significant differences in soil properties occur. Areas too small to delineate (less than 2 ha in the cleared areas or less than 12.5 ha in the forested areas) may be included in individual map units.

In this survey, soils were mapped utilizing a field mapping symbol as indicated.

	Drainage			
	M	8	2	D
Parent material				

Depth to constricting or contrasting layer

1	C	X

Texture of material overlying constricting or contrasting layer

surface stoniness slope rockiness

The field mapping symbol describes the dominant characteristics of a delineation as follows:

(1) Parent material; texture, coarse fragments, color of parent material, and landform all combine to distinguish one parent material from another. Seventeen classes were used in the field mapping.

(2) Drainage; nine classes were used, which included groupings of dominant and significant drainage classes. Drainage classes are described in Canada Soil Survey Committee (1978).

(3) Depth to constricting or contrasting layer; six classes were used.

(4) Texture of soil material overlying the constricting or contrasting layer; 22 classes were used. The classes were combinations of the texture classes and their modifiers (Canada Soil Survey Committee 1978).

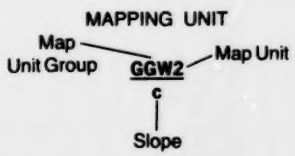
(5) Surface stoniness; six classes as described in Canada Soil Survey Committee (1978).

(6) Slope; 10 classes as described in Canada Soil Survey Committee (1978).

(7) Rockiness; six classes as described in Canada Soil Survey Committee (1978).

For the purposes of readability and usefulness to the general reader, the field mapping symbols were abridged and simplified for publication, although all the original data remain on file in the soil survey office. The map symbol used on the published soil maps is as follows.

Explanation of Symbols of Mapping Unit



The following procedure was used in moving from field symbol to final symbol:

(1) The parent materials of limited extent were amalgamated with similar parent materials. Some parent materials were subdivided because of a contrasting property. This resulted in 15 map unit groups and one land type. (See Map Unit Key.) The relationship between most of the map units is illustrated in Fig. 8.

(2) The field delineations for each of the 15 map unit groups were listed in each drainage class. Classes of significant extent were tentatively assigned a map unit symbol, and classes of limited extent were assigned to the closest drainage class.

(3) The map units (based on drainage only) for each group were then reviewed for depth and texture. If a map unit had significant divisions in either texture or depth, the divisions were assigned a map unit symbol. Field delineations with texture or depth classes of limited extent were assigned to the nearest map unit.

(4) The map units were then reviewed for surface stoniness and rockiness. Classes were assigned to each map unit based upon the dominant classes found for those characteristics.

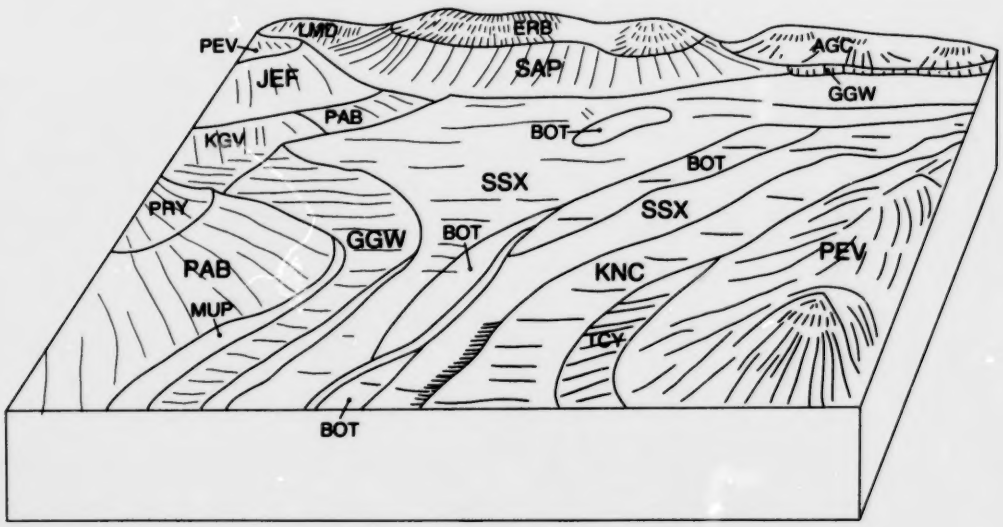


Fig. 8. Relationship of map units in survey area.

MAP UNIT KEY

The map units of the Sussex area were assembled in a map unit key, allowing individuals to classify soils. In addition, map unit groups and their individual map units are described in detail.

I. Map units developed on morainal material

A. Map units that have a compact subsoil within 1 m of the surface. The subsoil contains less than 35% coarse fragments and the fraction finer than 2 mm (fine earth) contains 18-35% clay.

1. Saltsprings (SAP)

The brown or dark brown firm or very firm parent material contains 10-30% gray and brown channery and flaggy coarse fragments of shale and sandstone (Albert formation). There are only a few of these fragments on the surface, and less than 2% of the area is exposed bedrock.

(a) SAP1

20-75 cm of friable silt loam or gravelly silt loam, over firm or very firm gravelly or nongravelly silt loam or silty clay loam subsoil; moderately well drained.

(b) SAP2

20-75 cm of friable silt loam, loam, or gravelly silt loam, over firm or very firm gravelly or nongravelly silt loam or silty clay loam subsoil; imperfectly drained.

(c) SAP3

20-75 cm of friable silt loam, loam, or gravelly silt loam, over firm or very firm gravelly or nongravelly silt loam or silty clay loam subsoil; poorly drained.

2. Parsons Brook (PAB)

The reddish brown or dark reddish brown firm or very firm parent material contains 0-30% angular gravel weathered from gray and red conglomerate, red or gray channery and flaggy sandstone, and red channery mudstone. There are only a few of these fragments on the surface and less than 2% of the area is exposed bedrock.

(a) PAB1

20-50 cm of friable sandy loam or loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; moderately well drained.

(b) PAB2

20-50 cm of friable sandy loam, silt loam, or loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; dominantly moderately well drained, with significant areas imperfectly drained.

(c) PAB3

20-50 cm of friable sandy loam, loam, or gravelly loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; imperfectly drained.

(d) PAB4

20-50 cm of friable sandy loam or loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; dominantly imperfectly drained, with significant areas that are poorly drained.

(e) PAB5

20-50 cm of friable silt loam, sandy loam, or loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; poorly drained.

(f) PAB6

50-100 cm of friable sandy loam or loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; moderately well drained.

(g) PAB7

50-100 cm of friable sandy loam, loam, or gravelly sandy loam, over firm or very firm nongravelly or gravelly loam or clay loam subsoil; imperfectly drained.

3. Knightville (KGV)

The dusky red to reddish brown firm or very firm parent material contains less than 20% red channers composed of mudstone, shale, and gray and red flaggy sandstones. There are none or only a few of these fragments on the surface and less than 2% of the area is exposed bedrock.

(a) KGV1

20-50 cm of friable loam to silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; moderately well drained.

(b) KGV2

20-50 cm of friable loam to silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; imperfectly drained.

(c) KGV3

20-50 cm of friable loam to silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; poorly drained.

B. Map units that have a compact subsoil within 1 m of the surface. The subsoil contains less than 35% coarse fragments and the fine earth less than 18% clay.

1. Parry (PRY)

The dark reddish brown or reddish brown firm parent material contains 10-30% angular gravel weathered from gray and red conglomerate and gray and brown channery and flaggy sandstones. There are a few of these fragments on the surface, and less than 2% of the area is exposed bedrock.

(a) PRY1

20-50 cm of friable loam, gravelly loam, or gravelly silt loam, over firm nongravelly or gravelly sandy loam or loam subsoil; moderately well drained.

(b) PRY2

20-50 cm of friable sandy loam, loam, or gravelly sandy loam, over firm nongravelly or gravelly sandy loam or loam subsoil; dominantly moderately well drained, with significant areas imperfectly drained.

(c) PRY3

20-50 cm of friable loam or gravelly silt loam, over firm nongravelly or gravelly sandy loam or loam subsoil; imperfectly drained.

(d) PRY4

50-100 cm of friable nongravelly or gravelly sandy loam or loam, over firm nongravelly or gravelly sandy loam or loam subsoil; moderately well or well drained.

(e) PRY5

50-100 cm of friable gravelly loam or gravelly sandy loam, over firm nongravelly or gravelly sandy loam or loam subsoil; dominantly moderately well drained, with significant areas that are imperfectly drained.

(f) PRY6

50-100 cm of friable sandy loam, loam, or gravelly sandy loam, over firm nongravelly or gravelly sandy loam or loam subsoil; imperfectly drained.

(g) PRY7

20-100 cm of friable silt loam, gravelly sandy loam, or gravelly loam, over the firm nongravelly or gravelly sandy loam or loam subsoil; poorly drained.

C. Map units that lack compact subsoil within 1 m of the surface. The subsoil contains less than 35% coarse fragments and less than 18% clay.

1. Tracy (TCY)

The dark red friable parent material contains 10-30% red or reddish brown channery or flaggy coarse fragments of mudstone and sandstone. There are a few of these fragments on the surface and less than 2% of the area is exposed bedrock.

(a) TCY1

More than 1 m of friable sandy loam, loam, or gravelly loam, over sandstone or mudstone bedrock; moderately well drained.

(b) TCY2

More than 1 m of friable loam or gravelly loam, over sandstone or mudstone bedrock; imperfectly drained.

2. Jeffries Corner (JEF)

The dark reddish brown or reddish brown, friable parent material contains 20-35% angular gravel weathered from gray and red conglomerate and gray and brown channery flaggy sandstones. There are a few of these fragments on the surface, and less than 2% of the area is exposed bedrock.

(a) JEF1

More than 1 m of friable gravelly sandy loam or gravelly loam; moderately well or well drained.

(b) JEF2

More than 1 m of friable gravelly sandy loam or gravelly loam; dominantly moderately well drained with significant areas that are imperfectly drained.

(c) JEF3

More than 1 m of friable gravelly sandy loam or gravelly loam; imperfectly drained.

D. Map units that lack compact subsoil within 1 m of the surface. The subsoil contains more than 35% coarse fragments, and the fine earth contains less than 18% clay and less than 85% sand.

1. Erb Settlement (ERB)

The brown or dark brown friable parent material contains 35-50% brown and gray channery or flaggy coarse fragments of shale (Albert). There are a few of these fragments on the surface, and less than 2% of the area is exposed bedrock.

(a) ERB1

50-100 cm of friable gravelly silt loam or gravelly loam, over shale bedrock; moderately well drained.

(b) ERB2

50-100 cm of friable gravelly silt loam, over shale bedrock; dominantly imperfectly drained, with significant areas that are moderately well drained.

(c) ERB3

50-100 cm of friable gravelly silt loam or gravelly loam, over shale bedrock; poorly drained.

2. Lomond (LMD)

The brown or dark brown friable parent material contains 35-70% angular cobbly or stony coarse fragments of igneous and metamorphic origin. There are many of these fragments on the surface, and less than 2% of the area is exposed bedrock.

(a) LMD1

More than 1 m of friable gravelly or very gravelly sandy loam or silt loam; well or rapidly drained.

(b) LMD2

More than 1 m of friable gravelly or very gravelly sandy loam or silt loam; dominantly well drained, with significant areas that are imperfectly drained.

3. Parleeville (PEV)

The reddish brown or dark reddish brown friable parent material contains 35-70% angular gravel weathered from gray and red conglomerate. There are a few of these fragments on the surface, and 0-10% of the area is exposed bedrock.

(a) PEV1

20-50 cm of very friable gravelly sandy loam or gravelly loam, over conglomerate bedrock; well drained.

(b) PEV2

20-50 cm of loose very gravelly sandy loam or very gravelly loamy sand, over conglomerate bedrock; well or rapidly drained.

(c) PEV3

50-100 cm of very friable gravelly loamy sand, gravelly sandy loam, or gravelly silt loam, over conglomerate bedrock; well drained.

(d) PEV4

50-100 cm of very friable very gravelly sandy loam or very gravelly loamy sand, over conglomerate bedrock; rapidly or well drained.

(e) PEV5

50-100 cm of very friable gravelly or very gravelly sandy loam or silt loam, over conglomerate bedrock; dominantly well drained with significant areas that are imperfectly drained.

E. Map units that lack compact subsoil within 1 m of the surface. The subsoil contains more than 35% coarse fragments, and the fine earth contains more than 70% sand.

1. Anagance (AGC)

The brown or yellowish brown friable parent material contains 35-50% brown channery or flaggy sandstone fragments. There are a few of these fragments on the surface and less than 2% of the area is exposed bedrock.

(a) AGC1

More than 1 m of very friable gravelly sand or gravelly loamy sand; well or rapidly drained.

II. Map units developed on glaciolacustrine material

A. Map units that have a compact subsoil within 1 m of the surface. The subsoil contains less than 20% coarse fragments, and the fine earth contains more than 30% clay.

1. Mount Hope (MUP)

The reddish brown, firm, or very firm parent material contains less than 20% coarse fragments of mixed origin. There are neither coarse fragments on the surface nor bedrock exposures.

(a) MUP1

20-50 cm of friable loam to silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; moderately well drained.

(b) MUP2

20-50 cm of friable loam to silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; imperfectly drained.

(c) MUP3

20-50 cm of friable silt loam or silty clay loam, over firm or very firm silty clay loam or silty clay subsoil; poorly drained.

III. Map units developed on glaciofluvial material

A. Map units that lack compact subsoil within 1 m of the surface. The subsoil contains more than 20% coarse fragments, and the fine earth more than 70% sand.

1. Gagetown (GGW)

The loose parent material contains more than 20% gravel of mixed origin. There are a few of these coarse fragments on the surface, and bedrock exposures are absent.

(a) GGW1

0-50 cm of very friable sandy loam, gravelly sandy loam, or gravelly silt loam, over gravelly or very gravelly sand or loamy sand; well or rapidly drained.

(b) GGW2

0-50 cm of very friable sandy loam or loam, over gravelly or very gravelly sand or loamy sand; imperfectly drained.

(c) GGW3

50-100 cm of very friable sandy loam or gravelly sandy loam, over gravelly or very gravelly sand or loamy sand; well drained.

B. Map units that lack compact subsoil within 1 m of the surface. The subsoil contains less than 20% coarse fragments and the fine earth contains more than 70% sand.

1. Kennebecasis (KNC)

The very friable reddish brown parent material contains less than 20% gravel mixed origin. There are a few of these coarse fragments on the surface, and bedrock exposures are absent.

(a) KNC1

0-50 cm of very friable sandy loam, over sand or loamy sand subsoil; well or moderately well drained.

IV. Map units developed on fluvial material

A. Map units that lack compact subsoil within 1 m of the surface. The subsoil is a mixture of sand and gravel.

1. Sussex (SSX)

The very friable or loose reddish brown parent material contain, variable amounts of gravel of mixed origin, and more than 70% of the fine earth fraction is sand. There are few coarse fragments on the surface and no bedrock exposures.

(a) SSX1

0-50 cm of very friable sandy loam or silt loam, over sand and gravel subsoil; moderately well drained.

(b) SSX2

0-50 cm of very friable sandy loam or silt loam, over sand and gravel subsoil; imperfectly drained.

(c) SSX3

50-100 cm of very friable sandy loam or silt loam, over sand and gravel subsoil; moderately well drained.

(d) SSX4

50-100 cm of very friable sandy loam or silt loam, over sand and gravel subsoil; imperfectly drained.

(e) SSX5

0-100 cm of very friable sandy loam, silt loam, or loam, over sand and gravel subsoil; poorly drained.

B. Map units that have a compact layer within 1 m of the surface. The subsoil is stratified layers of silty clay loam or silt loam with loamy sand or sand.

1. Bottomland (BOT)

The stratified olive gray to grayish brown parent material contains less than 20% coarse fragments. There are neither coarse fragments on the surface nor bedrock exposures.

(a) BOT1

More than 1 m of friable and firm olive gray to grayish brown stratified fluvial silty clay loam, or silt loam with loamy sand, or sand; dominantly imperfectly drained with significant areas that are poorly drained.

(b) BOT2

More than 1 m of friable and firm olive gray to grayish brown stratified fluvial silty clay loam, or silt loam with loamy sand, or sand; poorly or very poorly drained.

V. Land types

A. Gully sides and bottoms.

1. Gullies (G)

The steeply sloping sides of gullies have material similar to surrounding soils, whereas the gently sloping bottoms of gullies are generally finer textured and stratified.

(a) G

Variable depth and texture of soil material; drainage ranges from rapid on sides to imperfect or poor on bottom.

MAP UNIT DESCRIPTIONS

ANAGANCE

The Anagance (AGC) group of map units has only one map unit, which consists of soils formed on 1 m or more of very friable gravelly sand or gravelly loamy sand. Permeability is high, drainage is good or rapid, and slopes range from 5 to 30%.

Landform and soil material

AGC map units occur on blanket moraines (Canada Soil Survey Committee 1978) over sandstone bedrock. The soil material consists of more than 1 m of very friable brown or yellowish brown gravelly sand or gravelly loamy sand. Coarse fragments are restricted to gray and brown channery or flaggy sandstone.

Distribution, extent, and present land use

The AGC map unit occurs exclusively on top of Mount Pisgah (Fig. 9). The map unit covers 1622 ha and supports forests of white pine, maple, and birch with some beech. Some areas of the AGC map unit were farmed in the past but have since reverted to forests.

Range in characteristics

The very friable soil material is more than 1 m deep, but in places the sandstone bedrock may occur within 1 m. The texture of the friable material is gravelly sand, or gravelly loamy sand, but in places is sand or loamy sand.

Differentiating characteristics from other groups of map units

The AGC map unit has a unique texture (gravelly loamy sand or gravelly sand), color (brown or yellowish brown), and coarse fragments (gray and brown sandstone). These three features combine to distinguish the map unit from other map unit groups.

The AGC group is differentiated from the PEV group on the basis of bedrock. The PEV group is underlain by conglomerate bedrock, whereas the AGC group is underlain by gray sandstone bedrock.

Where the texture is finer (sandy loam or gravelly sandy loam) the soils were mapped in the JEF group. Where red sandstone and a finer texture occurred, the soils were classified in the TCY group.

Taxonomy of map unit

AGC1: Orthic Humo-Ferric Podzol.

Remarks

The AGC map unit was formerly mapped as the Anagance association in Aalund and Wicklund (1950).

Key to the symbols used in the map-unit cross sections

materials	symbols	materials	symbols
shale bedrock		glaciofluvial sand and loamy sand	
conglomerate-sandstone bedrock		glaciofluvial sand and gravel	
compact till		glaciofluvial sandy loam or gravelly sandy loam	
friable till		fluvial sandy loam or silty loam	
sandstone bedrock		fluvial silty clay loam or silt loam	
fluvial sand and gravel			
glaciolacustrine		vegetation in well-drained soils	
metamorphic-volcanic bedrock		vegetation in poorly drained soils	

BOTTOMLAND

The Bottomland (BOT) group of map units consists of soils developed on more than 1 m of stratified silt loam or silty clay loam, with lenses of sand or loamy sand fluvial material. Permeability is slow, drainage is poor or imperfect, and slopes range from 0.5 to 5%.

Landform and soil material

The BOT group of map units developed on level active fluvial deposits. The soil material is more than 1 m of stratified olive gray to grayish brown silt loam or silty clay loam, with lenses of loamy sand or sand. There are no coarse fragments.

Distribution, extent, and present land use

The BOT map units are located chiefly along the Kennebecasis River (Fig. 10). Pockets also occur along other brooks and rivers of the survey area. The map units cover 1833 ha and are used mainly for natural grazing or they support wetland vegetation.

Range in characteristics

The soil material ranges from friable to firm consistence, with lenses of loose sand or loamy sand.

The drainage is generally poor but pockets of imperfect and very poorly drained soils exist.

The general texture of the soil material to 1 m is medium (Canada Department of Agriculture 1976) to moderately fine, although layers range from sand to silty clay loam. Most of the soils also have an organic surface that is usually less than 10 cm thick; rarely it may be as thick as 50 cm along parts of MacLeod Brook east of Picadilly Mountain and along McGregor Brook north of Roachville.

The color of the parent material is grayish brown to olive gray, but in the Apohaqui to Berwick area reddish brown material was found to occur when BOT units were found adjacent to MUP map units.

Differentiating characteristics from other groups of map units

The BOT map units are similar to some of the map units of the Sussex group. They differ from these units in texture. The Sussex map units have a general moderately coarse to medium texture underlain by sand and gravel, whereas the BOT map units have a generally medium to moderately fine texture.

The BOT group is distinguished from the MUP group in mode of deposition and taxonomy. The MUP group consists of a glaciolacustrine deposit of silty clay loam or silty clay and is classified in the Luvisolic order (Canada Soil Survey Committee 1978), whereas the BOT group consists of a stratified fluvial deposit of silt loam or silty clay loam, with lenses of sand or loamy sand, and is classified as Gleysolic or, where imperfectly drained, Regosolic soils.

Differentiating characteristics among BOT map units

The BOT map units are differentiated by drainage. BOT1 map units are dominantly imperfectly drained, with pockets of poor drainage, whereas BOT2 map units are dominantly poorly drained, with pockets of very poor drainage.

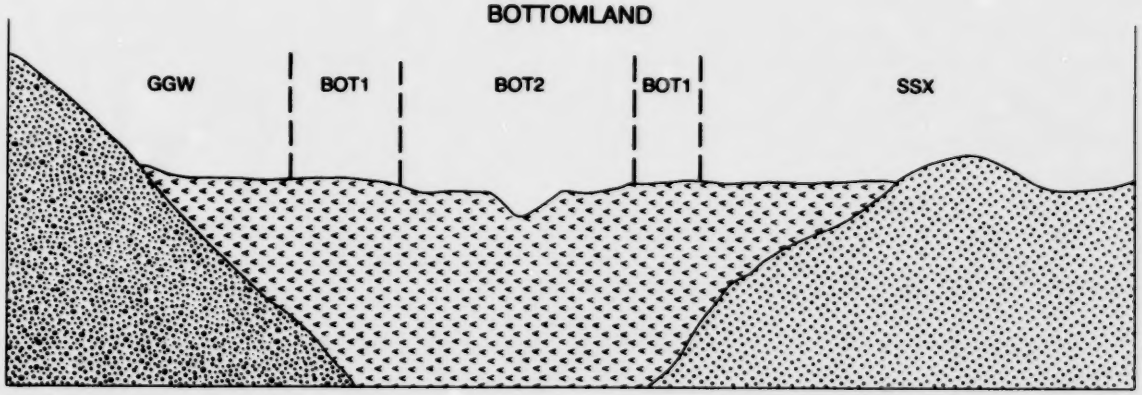
Taxonomy of map units

BOT1: Gleyed Cumulic Humic Regosol on the imperfectly drained areas. Rego Humic Gleysol on the poorly drained sites.

BOT2: Rego Humic Gleysol.

Remarks

The areas mapped in the present survey were formerly part of the ill-drained Interval and Sussex associations (Aalund and Wicklund 1950). Also included in the BOT map units are areas formerly mapped as peat or muck.



ERB SETTLEMENT

The Erb Settlement (ERB) group of map units consists of soils developed on 50-100 cm of friable material underlain by shale bedrock. Permeability is medium, drainage ranges from poor to moderately good, and slopes range from 2 to 30%.

Landform and soil material

The map units of the ERB group occur as morainal veneers over shale bedrock. The soil material consists of 50-100 cm of friable brown or dark brown gravelly silt loam or gravelly loam, over shale bedrock. Coarse fragments consist of channery and flaggy shale and sandstone (Albert formation).

Distribution, extent, and present land use

The ERB map unit group occurs chiefly in the area of Wards Creek, Ratter Corner, and Erb Settlement (Fig. 11). A few pockets are found near Urney. The map units cover 2340 ha, and where the land is cleared for agriculture it is used mainly for forage production. Where the land is forested, regenerating softwood forests are found.

Range in characteristics

The friable soil material ranges from 50 to 100 cm deep over shale bedrock. In some places the bedrock may be shallower than 50 cm, in others deeper than 100 cm. The bedrock in most cases is shale, but areas of sandstone and mudstone bedrock were found. These were included in the ERB map unit group.

The average texture is gravelly silt loam or gravelly loam. At the surface the texture may be silt loam or loam, but in the subsoil the coarse fragments are more numerous, resulting in textures of very gravelly silt loam. Where the average texture is silt loam the bedrock usually is deeper than 100 cm, but where the average texture is very gravelly loam the bedrock is usually shallower than 50 cm.

Surface stoniness ranges from slight to moderate, but eroded areas usually have a higher percentage of surface stone coverage. In addition, many locations have a high content of small (2-25 cm) coarse fragments on the soil surface.

Where the ERB map unit group borders SAP map units, compact subsoil underlain by the shale bedrock occurs. These units were included in the SAP map units.

Where the ERB map units border JEF, the areas were labeled JEF if no shale bedrock occurred within 1 m and a significant percentage of the coarse fragments was not shale (Albert).

Differentiating characteristics from other groups of map units

The ERB group of map units should not have a compact subsoil, as does the SAP group of map units. Coarse fragments, color, and texture may be the same, but the SAP map units have a compact subsoil, whereas the ERB map units do not.

The ERB map units differ from the JEF map units in type of dominant coarse fragments or bedrock type. Although the color of the parent material may be similar, the JEF map units do not have shale bedrock within 1 m, and the dominant coarse fragment of the ERB map units is shale (Albert).

The ERB and KGV map units differ in color of shale bedrock as well as in texture. The shale bedrock of ERB map unit is brown or gray, whereas the KGV units have a red shale. The KGV map units also are a silty clay loam or silty clay texture, but the ERB map units are gravelly silt loam or gravelly loam.

Differentiating characteristics among ERB units

The ERB map units are differentiated by drainage. The ERB1 map unit is moderately well drained, the ERB2 map unit is dominantly imperfectly drained with significant areas of moderately good drainage, and the ERB3 map unit is poorly drained.

Taxonomy of map units

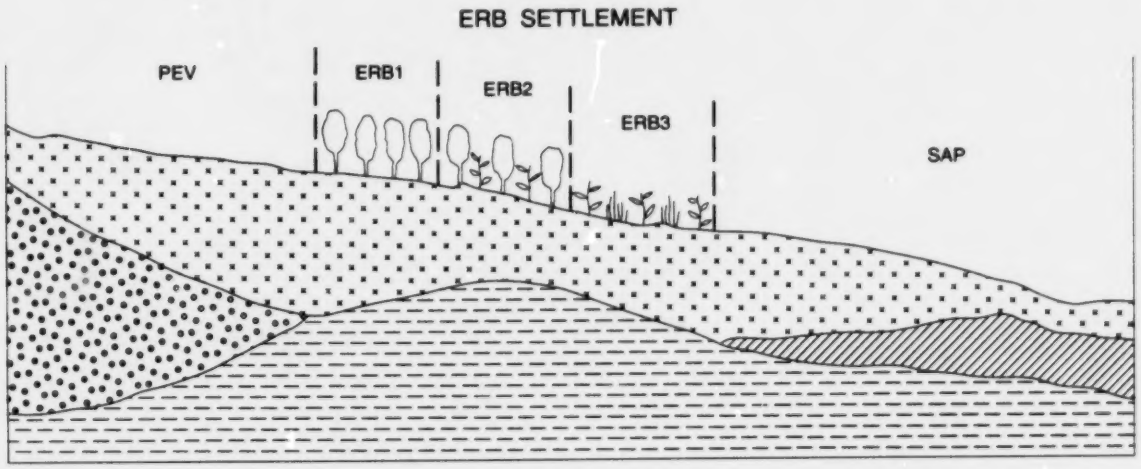
ERB1: Orthic Humo-Ferric Podzol. Where cleared and cultivated, the upper horizons have been lost through erosion and darkened by crop residues. The cultivated soils, therefore, may be classified as Orthic Dystric or Orthic Sombric Brunisols and where erosion has been severe, as Orthic Regosol.

ERB2: Predominantly Gleyed Humo-Ferric Podzol with significant areas of Orthic Humo-Ferric Podzol. Where cleared and cultivated, the upper horizons have been lost through erosion and darkened by crop residues. Therefore, the cultivated soils may be classified as Gleyed Sombric or Gleyed Dystric Brunisols, with significant areas of Orthic Sombric or Orthic Dystric Brunisols and where erosion has been severe, as Orthic Regosol.

ERB3: Rego Humic Gleysol.

Remarks

The ERB map units were formerly part of the Saltspring association mapped in the Aalund and Wicklund (1950). In the present report, the former Saltsprings association was divided into the ERB and SAP groups of map units.



GAGETOWN

The Gagetown (GGW) group of map units consists of soils developed on 0-100 cm of very friable sandy loam, loam, gravelly sandy loam, or gravelly silt loam, over glaciofluvial gravelly or very gravelly sand or loamy sand. Permeability is high, drainage is imperfect to rapid, and slopes range from 0.5 to 30%.

Landform and soil material

The landform associated with the GGW group of map units is glaciofluvial terraces and kames. The soil material consists of 0-100 cm of very friable sandy loam, loam, gravelly sandy loam, or gravelly silt loam, over gravelly or very gravelly sand or loamy sand. There is more than 20% of gravelly coarse fragments of mixed origin in the subsoil.

Distribution, extent, and present land use

The GGW map units are located along the sides of the former glacial valleys in the survey area (Fig. 12). The map units cover 4623 hectares. Where used for agriculture, forages and grains are grown. Forest vegetation usually consists of pine, maple, and birch.

Range in characteristics

The soil material ranges from 0 to 100 cm of sandy loam, loam, gravelly sandy loam, or gravelly silt loam, over gravelly or very gravelly sand or loamy sand. Lenses of sand may also be found in the underlying material.

In addition, the GGW2 map unit contains inclusions of areas of imperfectly drained units that have loamy sand or sand texture in the top 100 cm.

When it occurs in the vicinity of the MUP group of map units, silty clay loam material may be found underlying the gravel at 1 m or more below the surface.

Differentiating characteristics from other groups of map units

The GGW map units differ from other map units on the basis of mode of deposition and texture. They make up one of only two glaciofluvial soils in the survey area (KNC being the other). They differ from the other glaciofluvial soil in texture. The KNC map unit is restricted to soils that have sandy subsoils, whereas the GGW group encompases glaciofluvial deposits that contain more than 20%, by volume, of coarse fragments.

Differentiating characteristics among GGW map units

The individual GGW map units are differentiated on the basis of depth, drainage, and texture. The GGW3 map unit has 50-100 cm of sandy loam or gravelly sandy loam overlying the subsoil; the GGW1 has only 0-50 cm of sandy loam or gravelly sandy loam; and the GGW2 has only 0-50 cm of sandy loam or loam, in each case over the sandy subsoil. In addition, the GGW2 map unit is imperfectly drained, whereas the GGW1 unit is rapidly drained.

Taxonomy of map units

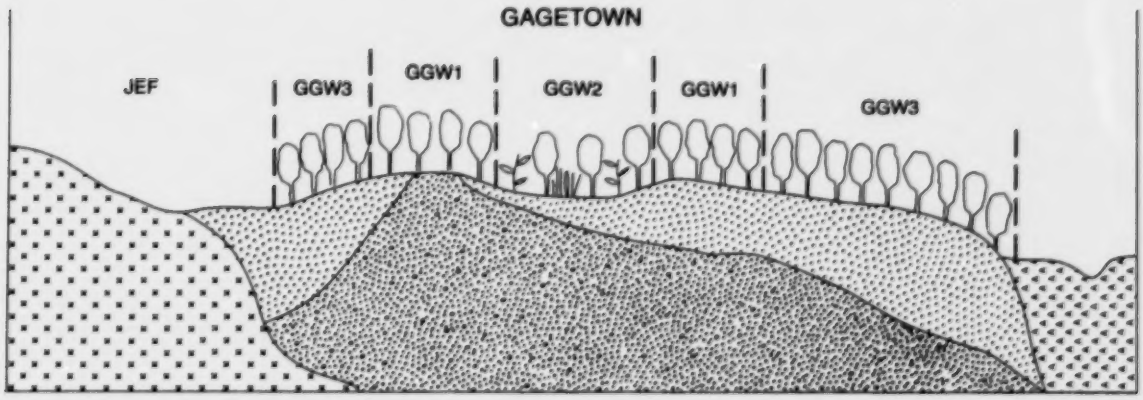
GGW1: Orthic Humo-Ferric Podzol.

GGW2: Gleyed Humo-Ferric Podzol.

GGW3: Orthic Humo-Ferric Podzol.

Remarks

The GGW group of map units is related to the Gagetown association as described in the Aalund and Wicklund (1950).



JEFFRIES CORNER

The Jeffries Corner (JEF) group of map units consists of soils developed on more than 1 m of friable gravelly sandy loam or gravelly loam till. Permeability is medium, drainage is imperfect to good, and slopes range from 2 to 45%.

Landform and soil material

The JEF map units are developed on undulating and hummocky blanket moraines. The soil material is more than 1 m of friable dark reddish brown or reddish brown gravelly sandy loam or gravelly loam. Coarse fragments consist of angular gravel with some channery and flaggy sandstones.

Distribution, extent, and present land use

The JEF map units are located throughout the uplands in the survey area (Fig. 9). The map units cover 8362 ha and support mainly mixed forests, but where the land is cleared for agriculture, forage crops are grown.

Range in characteristics

The friable soil material is more than 1 m deep. The texture of this material is gravelly sandy loam or gravelly loam, but in places it occurs as sandy loam, loam, or gravelly silt loam. When found in the vicinity of PEV map units, the JEF map units may range to a gravelly loamy sand. The drainage is imperfect to good.

In places, coarse fragments may include fragments other than mentioned. In addition, the soil material may contain pockets of brown or yellowish brown material when it is found in the vicinity of ERB or SAP groups of map units.

Differentiating characteristics from other groups of map units

The JEF map units contain the same kind of coarse fragments and are the same texture as the PRY map units. They are distinguished from PRY map units in that they do not have compact till within 1 m.

The JEF map units do not have bedrock within 1 m, whereas the PEV map units do. Although they are similar in texture and kind of coarse fragments, depth to bedrock distinguishes the PEV from the JEF map units.

The TCY map units are similar to the JEF map units in content of coarse fragments and in texture, but they differ in kind of

coarse fragments and color of the soil material. The TCY map units contain red channery or flaggy sandstone and mudstone compared with JEF map units, which contain angular gravel from weathered conglomerate with gray and brown, channery, and flaggy sandstones. In addition, the JEF map units are dark reddish brown to reddish brown as compared with the dark red of the TCY group.

Differentiating characteristics among JEF map units

The JEF map units are differentiated by drainage. JEF1 map unit is well drained, JEF2 map unit is dominantly well drained with significant areas imperfectly drained, and JEF3 map unit is imperfectly drained.

Taxonomy of map units

JEF1: Orthic Humo-Ferric Podzol. Where they are cleared and cultivated, the upper horizons are generally mixed, darkened by crop residues, and thinned by erosion. The cultivated soils are classified as Orthic Sombric or Orthic Dystric Brunisols.

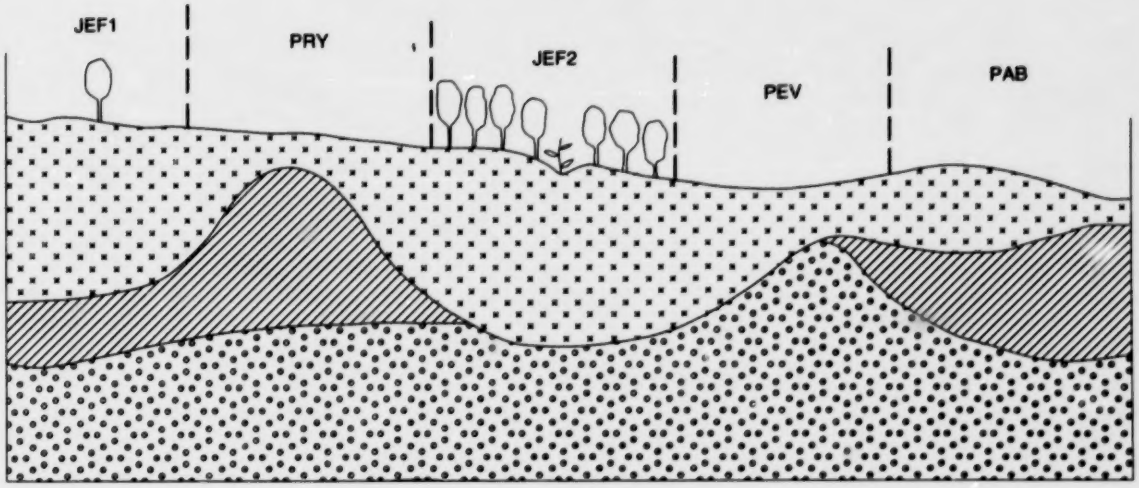
JEF2: Gleyed Humo-Ferric Podzol. The cultivated soils of JEF2 map units are generally classified as Gleyed Sombric or Gleyed Dystric Brunisols.

JEF3: Orthic Humo-Ferric Podzol, with areas that are imperfectly drained, are classified as Gleyed Humo-Ferric Podzol.

Remarks

The JEF map units were formerly part of the Parleeville, Salisbury, and Parry associations mapped in Aalund and Wicklund (1950). In this report these associations were redefined and divided into the PAB, PRY, PEV, and JEF groups of map units.

JEFFRIES CORNER



KENNEBECASIS

The Kennebecasis (KNC) group of map units consists of only one map unit formed on 0-50 cm of very friable sandy loam over glaciofluvial sand or loamy sand. Permeability is high and slopes range from 0.5 to 9%.

Landform and soil material

KNC map units occur on undulating glaciofluvial terraces. The soil material consists of 0-50 cm of very friable sandy loam, over loose reddish brown sand or loamy sand. There is less than 20%, by volume, of coarse fragments; those present are gravel of mixed origin.

Distribution, extent, and present land use

The KNC map unit occurs on terraces located in the former glacial valleys in the survey area (Fig. 12). The map unit covers 657 ha. Mainly forages are cultivated; the forest vegetation consists of pine, maple, and birch.

Range in characteristics

The sandy loam material ranges from 0 to 50 cm over sand or loamy sand. Occasionally, the sandy loam material is as thick as 100 cm and may occur as a silt loam.

In the vicinity of MUP map units, silty clay loam material may be found at depths below 1 m.

Near Plumweseep and Trout Creek as it passes by Sussex Corner, ortsteins were found in soil profiles in less than 15% of the area. Such soils therefore were left undifferentiated within the KNC map unit.

Differentiating characteristics from other groups of map units

The KNC map unit is distinguished from GGW map units on the percentage volume of coarse fragments present in the parent material. The KNC map units have less than 20% gravel, whereas the GGW map units have more than 20.

The KNC map units differ from the SSX map units in taxonomy and landform. The SSX units are fluvial deposits classified in the Regosolic order, whereas the KNC map units are glaciofluvial deposits classified in the Podzolic order.

Taxonomy of map unit

KNC1: Orthic Humo-Ferric Podzol.

Remarks

The KNC map unit was formerly mapped as part of the Riverbank and Kennebecasis associations in Aalund and Wicklund (1950).

KNIGHTVILLE

The Knightville (KGV) group of map units consists of soils with 20-50 cm of friable loam to silty clay loam underlain by a compact Bt and silty clay loam or silty clay till. Permeability is slow, drainage ranges from poor to moderately good, and slopes range from 2 to 45%.

Landform and soil material

The KGV group of map units developed on hummocky blanket moraines. The soil material consists of 20-50 cm of friable loam to silty clay loam, over firm or very firm dusky red to reddish brown silty clay loam or silty clay till. The coarse fragments consist of red channers of mudstone and shale, with some gray and red flaggy sandstones.

Distribution, extent, and present land use

The KGV map units are confined to the Smith Creek Valley area near the settlement of Mount Pisgah and to a small pocket on the north side of the Kennebecasis Valley near the settlement of Crockets Corner (Fig. 13). The map units cover 162 ha. The soils are mainly cleared in the survey area and forages are grown.

The friable soil material ranges from 20 to 50 cm, but is as deep as 100 cm in some places. The texture of this material is loam to silty clay loam.

Occasionally, shale or mudstone bedrock is found within 1 m of the surface. This occurs where the surface soil material has been lost by erosion. These areas also were found to have a gravelly texture in the upper material.

Differentiating characteristics from other groups of map units

The KGV map units are very similar to the PAB map units. The differences between the groups are subtle.

A combination of features distinguish the groups as follows. The PAB group has angular gravel derived from weathered conglomerate and red or gray channery or flaggy sandstones, whereas the KGV group does not. The content of coarse fragments is slightly higher in the PAB group of map units. The color of the parent material is reddish brown or dark reddish brown for PAB map units but KGV map units are dusky red to reddish brown. Lastly, the friable and firm soils of the KGV map units are more finely textured than those of the PAB map units (loam to silty clay loam as compared with sandy laom to loam; and silty clay loam to silty clay as compared with loam to clay loam).

The KGV map units are distinguished from the SAP by color and type of coarse fragments. The KGV map units are dusky red to reddish brown as compared with brown or dark brown for SAP. The coarse fragments of the SAP map units are gray and brown shale and sandstone, but KGV map units contain mainly red mudstone and shale.

Differentiating characteristics among KGV map units

The KGV map units are differentiated by drainage. KGV1 are moderately well drained, KGV2 are imperfect, and KGV3 are poorly drained.

Taxonomy of map units

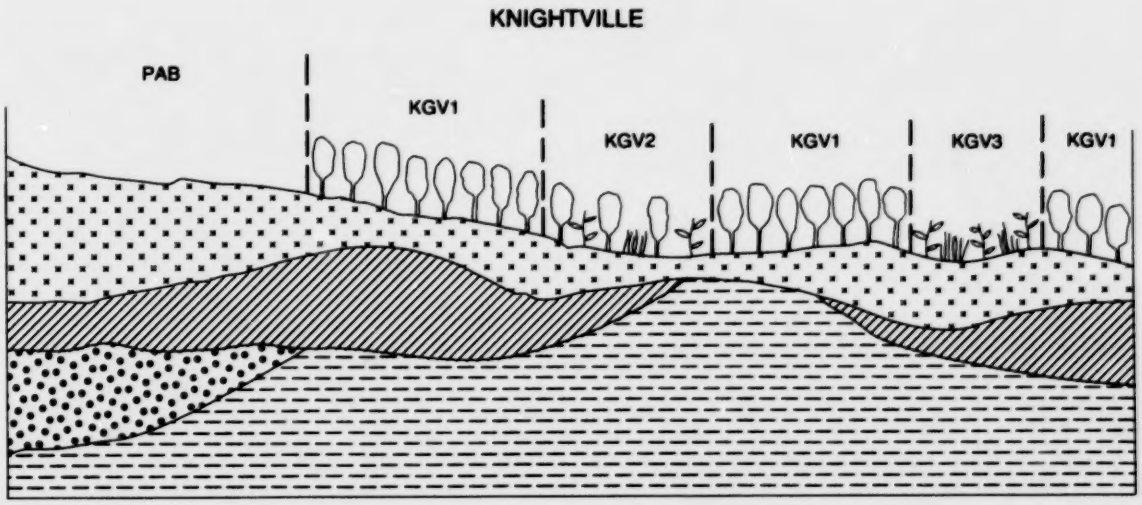
KGV1: Brunisolic Gray Luvisol. Where surface horizons have been removed by erosion, the soils are classified as Orthic Gray Luvisols.

LGV2: Gleyed Brunisolic Gray Luvisol. Where surface horizons have been removed by erosion, the soils are classified as Gleyed Gray Luvisols.

KGV3: Orthic Luvic Gleysol.

Remarks

The KGV map units were formerly part of Knightville association mapped in Aalund and Wicklund (1950).



LOMOND

The Lomond (LMD) group of map units consists of soils that formed in more than 1 m of friable, gravelly or very gravelly, sandy loam or silt loam till. Permeability is medium to high, drainage imperfect to good, and slopes range from 2 to 30%.

Landform and soil material

The LMD group of map units developed on undulating or hummocky blanket moraines. The soil material consists of more than 1 m of friable brown or dark brown gravelly or very gravelly sandy loam or silt loam. Coarse fragments consist of angular cobbles and stones of igneous and metamorphic origin.

Distribution, extent, and present land use

The LMD map units are largely confined to the area south and west of the line formed between Markhamville, Waterford, and South Branch. Pockets of LMD map units also occur north of Snider Mountain and between Mount Hebron and Jordan Mountain (Fig. 11). The map units cover 6350 ha. They support mixed forests of birch, fir, and spruce. Where the units are cleared for agriculture, mainly blueberries are grown.

Range in characteristics

The LMD map units contain coarse fragments from a wide geological background. The fragments are metamorphic and igneous in origin and include such rocks as rhyolite, andesite, chlorite schist, slate, and granite, among others.

The texture of the material includes gravelly or very gravelly sandy loam or silt loam. Where the units border the PAB map units, the texture is finer and can be found as a gravelly loam.

The depth of the soil material is 1 m or greater. In some places, bedrock is found closer to the surface.

The drainage is good or dominantly good mixed with imperfect. Although poorly drained sites occur, they cover a limited area.

Differentiating characteristics from other groups of map units

The LMD map units are differentiated on the basis of coarse fragments, texture, and color. The combination of metamorphic or igneous coarse fragments, gravelly or very gravelly sandy loam or silt loam texture, and brown or dark brown color differentiates the map units from all other map unit groups.

Differentiating characteristics among LMD map units

The LMD map units are differentiated by drainage. LMD1 map units are well drained, whereas LMD2 are dominantly well drained with significant areas that are imperfectly drained.

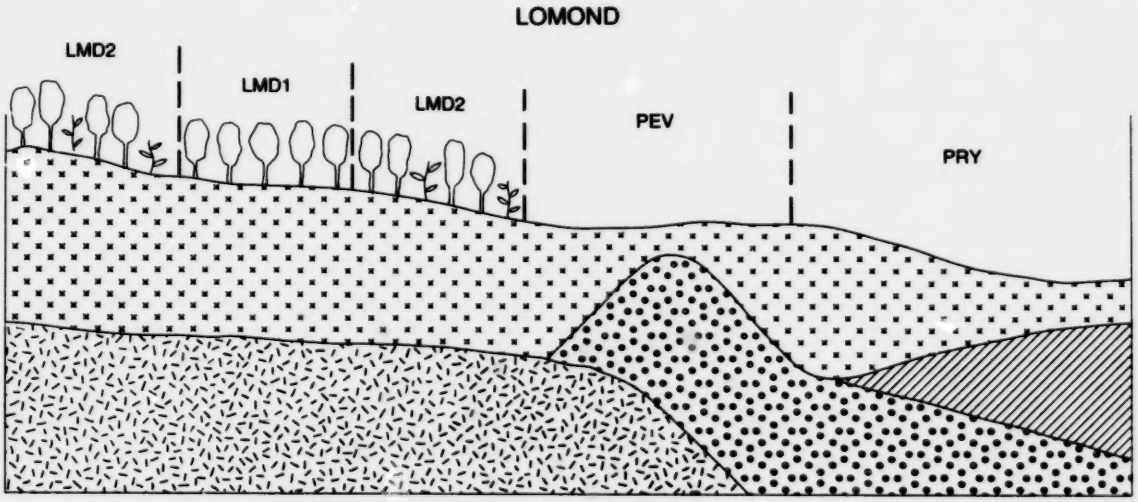
Taxonomy of map units

LMD1: Orthic Humo-Ferric Podzol.

LMD2: Well-drained areas are Orthic Humo-Ferric Podzol and imperfectly drained areas are Gleyed Humo-Ferric Podzol.

Remarks

The LMD map units were formerly part of the Lomond association mapped in Aalund and Wicklund (1950).



MOUNT HOPE

The Mount Hope (MUP) group of map units consists of soils with 20-50 cm of friable material underlain by a compact Bt and glaciolacustrine silty clay loam or silty clay. Permeability is medium in the friable material and slow in the compact material. Drainage is moderately good, imperfect, or poor, and slopes range between 0.5 and 15%.

Landform and soil material

The MUP map units occur on undulating glaciolacustrine deposits. The soil material is composed of 20-50 cm of friable loam to silty clay loam, underlain by firm or very firm reddish brown silty clay loam or silty clay. Coarse fragments, if present, consist of gravel of mixed origin.

Distribution, extent, and present land use

The MUP map units are scattered in the valleys located in the survey area (Fig. 12). A large section occurs between Sussex and the northern and western base of Picadilly Mountain. Pockets are also found east of Rockville, north of Apohaqui along the Millstream River, north of Berwick, and north of Dunsinane Station. The map units cover 1782 ha. When the area is forested, stands of softwoods occur, whereas mainly forages are grown when it is cleared for agriculture.

Range in characteristics

The depth of the friable material is 20-50 cm. Where the friable material is found adjacent to KNC or GGW map units, it may be 50-100 cm deep and have a texture as coarse as a loamy sand.

The moderately well drained and imperfectly drained soils have friable material with a loam to silty clay loam texture, whereas the poorly drained soils have friable material with a silt loam or silty clay loam texture.

Differentiating characteristics from other groups of map units

The MUP map units are similar to the KGV map units. The groups are distinguished from each other on the basis of coarse fragments and the depth to bedrock. KGV map units contain red channers of mudstone, and shale and bedrock may be found within a depth of 1-2 m. MUP map units contain very few coarse fragments (those found are gravel of mixed origin), and no bedrock occurs within 2 m.

Differentiating characteristics among MUP map units

The MUP map units are differentiated by drainage. MUP1 map units are moderately well drained, MUP2 imperfectly drained, and MUP3 poorly drained.

Taxonomy of map units

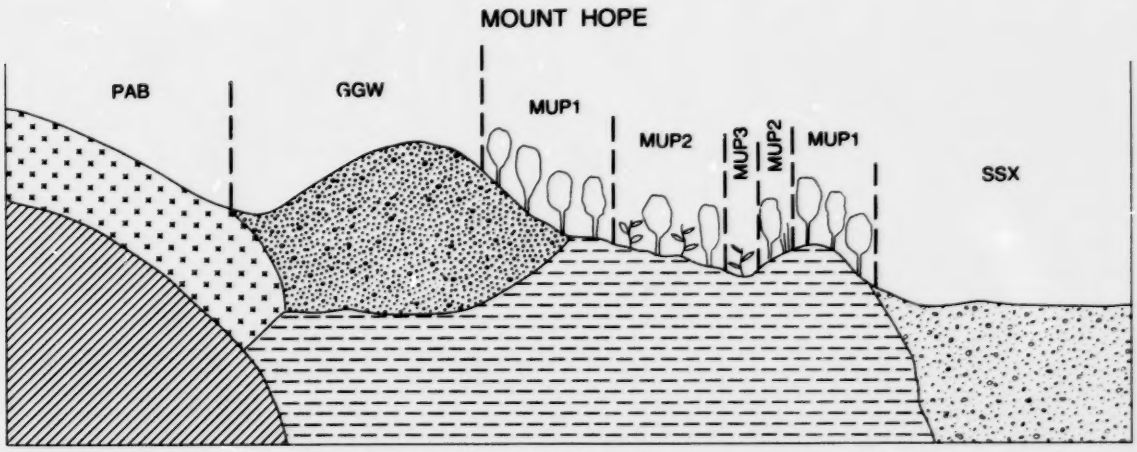
MUP1: Brunisolic Gray Luvisol. Where surface horizons have been removed by erosion, the soils are classified as Orthic Gray Luvisol.

MUP2: Gleyed Brunisolic Gray Luvisol. Where surface horizons have been removed by erosion, the soils are classified as Gleyed Gray Luvisol.

MUP3: Orthic Luvic Gleysol.

Remarks

The MUP were not mapped in Aalund and Wicklund (1950).



PARLEEVILLE

The Parleeville (PEV) group of map units consist of soils formed in 20-100 cm of loose or very friable gravelly or very gravelly loamy sand, sandy loam, silt loam, or gravelly loam, underlain by conglomerate bedrock. Permeability is high or medium in the friable material. Drainage is imperfect to rapid. Slopes range from 2 to 70%.

Landform and soil material

The PEV group occurs as morainal veneer overlying hummocky or ridged bedrock. The soil material consists of 20-100 cm of loose or very friable reddish brown or dark reddish brown gravelly or very gravelly loamy sand, sandy loam, silt loam, or gravelly loam, underlain by conglomerate bedrock. Coarse fragments consist of angular gravel weathered from gray and red conglomerate.

Distribution, extent, and present land use

The PEV map units are located throughout the survey area (Fig. 11). They cover 15 181 ha and support mixed forests of fir, maple, birch, pine, and spruce. Where the area is cleared for agriculture, mainly forages are grown.

Range in characteristics

The friable material ranges from 20 to 100 cm thick. It contains more than 35% coarse fragements, by volume, and the fraction finer than 2 mm contains less than 18% clay. Bedrock outcrops in places.

At Sharps Hill, Poodiac, and Plumweseep the PEV group is underlain by coarse grained sandstone, but conglomerate bedrock normally occurs.

Differentiating characteristics from other groups of map units

The PEV map units are the only ones that have less than 1 m of loose or very friable soil material, over conglomerate bedrock. The JEF map units have more than 1 m of friable soil material, but the PRY and PAB groups are underlain by compact till within 1 m; although conglomerate bedrock may occur, compact till lies between the friable soil material and the bedrock.

Differentiating characteristics among PEV map units

The PEV map units are differentiated by drainage, depth of loose or very friable material, and texture. The PEV1 and PEV2 map units have 20-50 cm of loose or very friable material underlain by bedrock, but the PEV3, PEV4, and PEV5 have 50-100 cm.

PEV1 and PEV2 map units differ in texture of the soil material. PEV1 is gravelly sandy loam or gravelly loam, and PEV2 is very gravelly sandy loam or very gravelly loamy sand.

PEV3 and PEV4 also differ in texture. PEV3 is gravelly loamy sand, gravelly sandy loam, or gravelly silt loam, and PEV4 is very gravelly loamy sand or very gravelly sandy loam.

PEV5 differs from PEV3 and PEV4 in drainage. PEV3 and PEV4 are well or rapidly drained, whereas PEV5 is dominantly well drained with significant areas that are imperfectly drained.

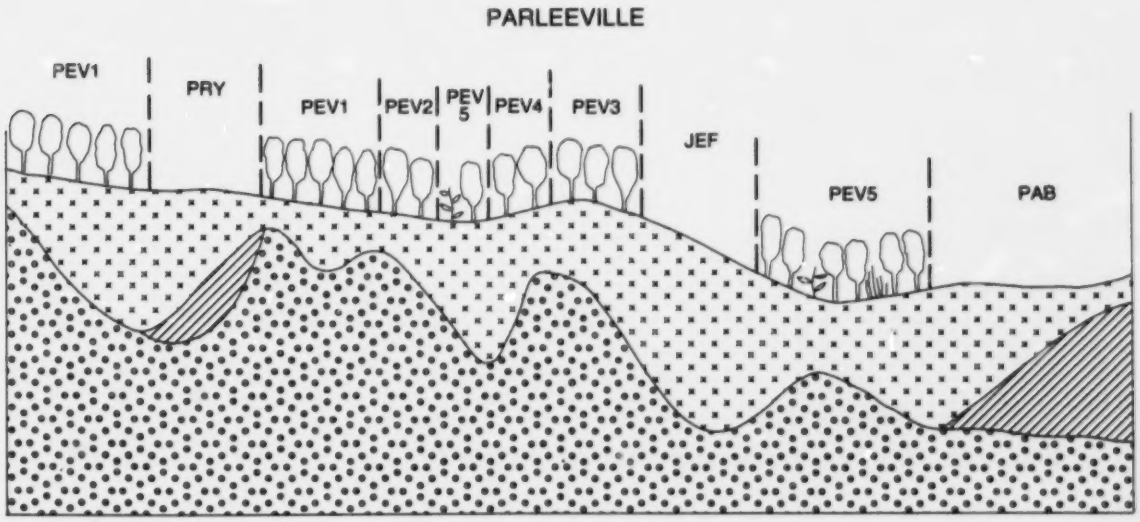
Taxonomy of map units

PEV1 to PEV4: Orthic Humo-Ferric Podzol. Where the area is cultivated, the upper horizons are generally mixed, darkened by crop residues and thinned by erosion. The cultivated soils therefore are classified as Orthic Sombric or Orthic Dystric Brunisols. In undisturbed forested areas at higher elevations the soils are sometimes classified as Orthic Ferro-Humic Podzol.

PEV5: Dominantly Orthic Humo-Ferric Podzol with significant areas classified as Gleyed Humo-Ferric Podzol, Gleyed Sombric, or Gleyed Dystric Brunisol.

Remarks

The PEV group was formerly part of the Parleeville and Parry associations mapped in Aalund and Wicklund (1950). In the present report, the former associations were divided into the PAB, PEV, JEF, and PRY groups of map units.



PARRY

The Parry (PRY) group of map units formed in 20-100 cm of friable gravelly or nongravelly silt loam, sandy loam, or loam, underlain by compact nongravelly or gravelly sandy loam or loam till. Permeability is medium in the friable soil and slow in the compact till. Drainage is poor to moderately good and slopes range from 2 to 30%.

Landform and soil material

PRY map units occur on blanket moraines over undulating and hummocky bedrock. The soil material consists of 20-100 cm of friable gravelly or nongravelly silt loam, sandy loam, or loam, underlain by compact reddish brown or dark reddish brown, nongravelly or gravelly sandy loam or loam till. Coarse fragments consist of angular gravel, with some channery and flaggy sandstones.

Distribution, extent, and present land use

The PRY map units are located throughout the uplands in the survey area (Fig. 14). They cover 7872 ha. Where the area is forested, softwood and hardwood mixtures are found. Forages are the main agricultural crop.

Range in characteristics

The friable soil material ranges from 20 to 100 cm deep. The texture was previously stated.

Where the PRY map units are bordered by the PEV group, bedrock may occur within 1 m of the surface. The soils were mapped as PRY map units if a layer of compact till was found; otherwise, they were mapped as PEV.

Differentiating characteristics from other groups of map units

The PRY group contains the same coarse fragments as the PAB group. They differ in the texture of the compact till. The PAB group consists of loam or clay loam (more than 18% clay), and the PRY group is sandy loam or loam (less than 18% clay).

The PRY group has the same surface texture as the JEF group. However, the PRY group has compact till within 1 m, whereas the JEF group does not.

Differentiating characteristics among PRY map units

The PRY map units are differentiated by depth of friable soil

material and drainage. PRY1 to PRY3 map units have 20-50 cm of friable soil material, PRY4 to PRY6 have 50-100 cm, and PRY7 has 20-100 cm of friable soil material.

PRY1 to PRY3 are distinguished from each other by drainage. PRY1 is moderately well drained, PRY2 is dominantly moderately well drained with significant areas that are imperfectly drained, and PRY3 is imperfectly drained.

PRY4 to PRY6 are also distinguished by drainage. PRY4 is moderately well drained, PRY5 is dominantly moderately well drained with significant areas that are imperfectly drained, and PRY6 is imperfectly drained.

PRY7 is distinguished from all other map units, as it is the only one that is poorly drained.

Taxonomy of map units

PRY1 and PRY4: Orthic Humo-Ferric Podzol. Where the area is cultivated, the upper horizons are generally mixed, darkened by crop residues, and thinned by erosion. The cultivated soils thus are classified as Orthic Sombric or Orthic Dystric Brunisols.

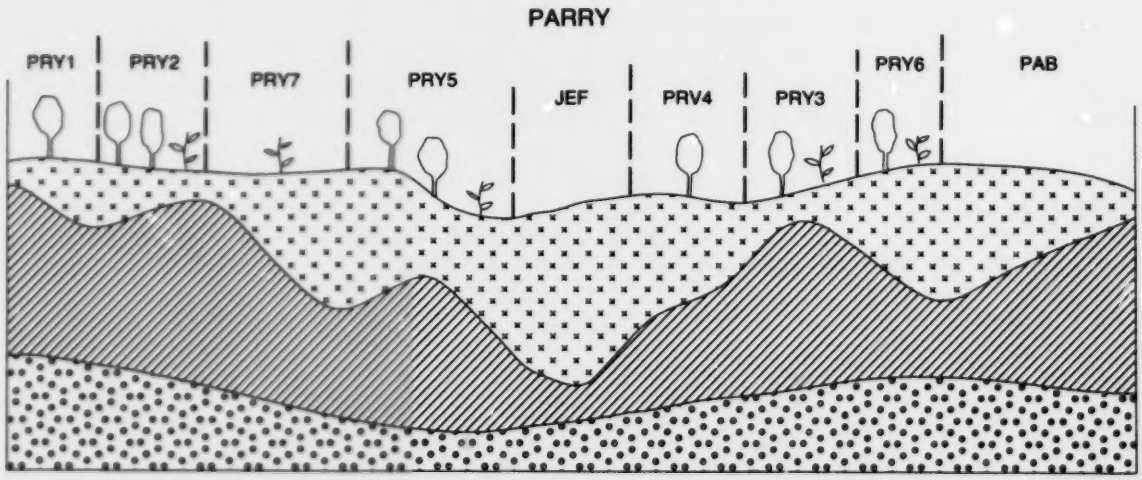
PRY3 and PRY6: Gleyed Humo-Ferric Podzol. The cultivated soils are Gleyed Sombric or Gleyed Dystric Brunisols.

PRY2 and PRY5: Dominantly Orthic Humo-Ferric Podzols, with significant areas of Gleyed Humo-Ferric Podzols.

PRY7: Rego Humic Gleysol.

Remarks

The PRY map units were formerly part of the Parry and Parleeville associations mapped in Aalund and Wicklund (1950). In the present report, the former Parry and Parleeville associations were divided into the PRY, JEF, and PEV groups of map units.



PARSONS BROOK

The Parsons Brook (PAB) map units are soils that formed in 20-100 cm of friable gravelly or nongravelly, sandy loam, silt loam, or loam underlain by compact loam or clay loam till. Permeability is medium in the friable material and slow in the compact till. Drainage ranges from moderately good to imperfect or poor. Slopes range from 0.5 to 30%.

Landform and soil material

The PAB group of map units developed on undulating and hummocky blanket moraines. The soil material consists of 20-100 cm of silt loam, nongravelly or gravelly sandy loam or loam, over firm or very firm, reddish brown or dark reddish brown, nongravelly or gravelly loam or clay loam till. Coarse fragments consist of angular gravel weathered from gray and red conglomerate, red or gray channery, or flaggy sandstone and red channery mudstone.

Distribution, extent, and present land use

The PAB map units are found throughout the survey area (Fig. 13) and cover 8842 ha. Mixed forests of predominantly softwoods prevail where the area is forested, whereas mainly forages are grown where it is cleared for agriculture.

Range in characteristics

The friable soil material ranges from 20 to 100 cm deep. The texture of this material is gravelly or nongravelly sandy loam, loam, or silt loam. In some places, the friable soil material is less than 20 cm deep and the texture is finer (clay loam or sandy clay loam).

The texture differs between map units. Generally, PAB1, PAB4, and PAB6 are sandy loam or loam. PAB2 and PAB5 are sandy loam, silt loam, or loam. PAB3 is sandy loam, loam, or gravelly loam. PAB7 is sandy loam, loam, or gravelly sandy loam.

Where the area is bordered by PEV map units, bedrock may occur 50-100 cm below the surface. Here a layer of compact till separates the bedrock from the friable soil material.

The compact till may be found with lenses (10 cm thick) of soil material that are coarser textured (sandy loam) and have a higher permeability. This generally occurs in lower slope positions and on glacial valley sides.

Differentiating characteristics from other groups of map units

The PAB map units are similar to a number of other groups of map units. They are differentiated from SAP map units by color of parent material and coarse fragments. The PAB units are reddish brown or dark reddish brown with angular gravel, red or gray sandstone, and red mudstone. The SAP units are brown or dark brown, with gray and brown sandstone and shale (Albert formation).

The PAB group differs from the PRY in texture. The compact till of the PRY group is more coarsely textured (sandy loam to loam with less than 18% clay) than that of the PAB group (loam to clay loam with 18-35% clay).

The PAB group is distinguished from the KGV by coarse fragment type and content, and parent material color and texture. The KGV group has less than 20%, by volume, of red mudstone and shale, and gray and red sandstone. The color is dusky red to reddish brown, and the texture is loam to silty clay loam underlain by silty clay loam or silty clay. The PAB group has 10-30%, by volume, of angular gravel, red or gray sandstone, and red mudstone. The color is reddish brown or dark reddish brown. The texture is silt loam, gravelly or nongravelly sandy loam or loam, underlain by nongravelly or gravelly loam or clay loam.

Differentiating characteristics among PAB map units

The map units are differentiated by depth of friable material and drainage. PAB1 to PAB5 have a depth of 20-50 cm of friable material, whereas PAB6 and PAB7 have 50-100 cm. PAB1 to PAB5 have different drainage. PAB1 is moderately well drained, PAB2 is dominantly moderately well drained with significant areas that are imperfectly drained, PAB3 is imperfectly drained, PAB4 is dominantly imperfectly drained with significant areas that are poorly drained, and PAB5 is poorly drained. PAB6 and PAB7 also are distinguished from each other by drainage. PAB6 is moderately well drained and PAB7 is imperfectly drained.

Taxonomy of map units

PAB1: Orthic Dystric Brunisol. Where the area is cultivated, the upper horizons are generally darkened by crop residues. The cultivated soils are therefore classified as Orthic Sombric Brunisols.

PAB2: Dominantly Orthic Dystric Brunisol, with significant areas of Gleyed Dystric Brunisol.

PAB3: Gleyed Dystric Brunisol. The cultivated soils of PAB3 map units are generally classified as Gleyed Sombric Brunisols.

PAB4: Dominantly Gleyed Dystric Brunisol, with significant areas of Rego Humic Gleysol.

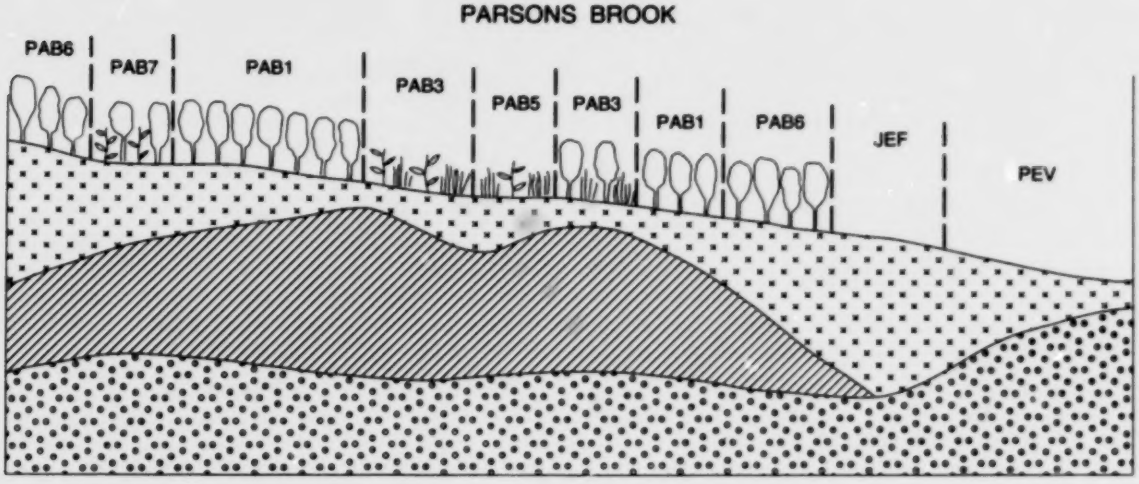
PAB5: Rego Humic Gleysol.

PAB6: Orthic Humo-Ferric Podzol. Where the area is cultivated, the upper horizons are generally mixed and darkened by crop residues. The cultivated soils are therefore classified as Orthic Sombric Brunisols.

PAB7: Gleyed Humo-Ferric Podzol. The cultivated soils of PAB7 map units are generally classified as Gleyed Sombric Brunisols.

Remarks

The PAB group was formerly part of the Salisbury and Parry associations mapped in Aalund and Wicklund (1950). In the present report, the former associations were divided into the PAB, PRY, and JEF groups of map units.



SALTSPRINGS

The Saltsprings (SAP) map units consist of soils that formed in 20-75 cm of friable silt loam, loam, or gravelly silt loam soil material, underlain by compact gravelly or nongravelly silt loam or silty clay loam. Permeability is medium in the friable soil and slow or very slow in the subsoil. Drainage ranges from moderately good to imperfect or poor. Slopes range from 2 to 15%.

Landform and soil material

SAP map units occur on blanket moraines over hummocky bedrock. The soil material consists of 20-75 cm of friable silt loam, loam, or gravelly silt loam, underlain by firm or very firm brown or dark brown gravelly or nongravelly silt loam or silty clay loam till. Coarse fragments consist of channery and flaggy shales and sandstones (Albert formation).

Distribution, extent, and present land use

The SAP map units are located mainly in the southwestern part of the map area near Erb Settlement and Ratter Corner. Additional small pockets occur near Berwick and Middleton (Fig. 13). The map units cover 3729 ha and are mainly regenerating softwood forests. Where the area is cleared for agriculture, mainly forages are grown.

Range in characteristics

The friable soil material ranges from 20 to 75 cm thick. The texture of this material is silt loam, loam, or gravelly silt loam. In some places, the material may be sandy loam or gravelly sandy loam. The imperfect and poorly drained map units are generally more finely textured (loam) than the moderately well drained map units. The subsoil is nongravelly or gravelly silt loam or silty clay loam, but may occur as gravelly loam.

Where the SAP map units are bordered by ERB map units, shale bedrock may occur 50-100 cm below the surface, but a layer of compact subsoil always separates the friable soil material from the bedrock.

Where PAB map units border SAP map units, intermingling of the tills occurred. Here SAP map units may have pockets of the PAB till (reddish brown or dark reddish brown) in the brown or dark brown subsoil.

Differentiating characteristics from other groups of map units

The SAP map units contain the same kind of coarse fragments as the ERB map units but are differentiated on the basis of the subsoil. The SAP map units have a firm or very firm subsoil, whereas the ERB map units lack a compact subsoil and overlie shale bedrock.

The SAP map units differ from the PAB map units in subsoil color and coarse fragment type. The PAB subsoil is reddish brown or dark reddish brown, whereas the SAP subsoil is brown or dark brown. The coarse fragments of the PAB map units are weathered gray and red conglomerate, red and gray sandstone, and red mudstone as compared with the brown and gray shale and sandstone of the SAP map units.

The SAP map units are distinguished from the KGV map units by the color of the subsoil and of coarse fragments. The KGV map units have dusky red to reddish brown subsoil containing red shale and mudstone.

Differentiating characteristics among SAP map units

The SAP map units are differentiated by drainage. SAP1 map units are moderately well drained, SAP2 map units are imperfectly drained, and SAP3 map units are poorly drained.

Taxonomy of map units

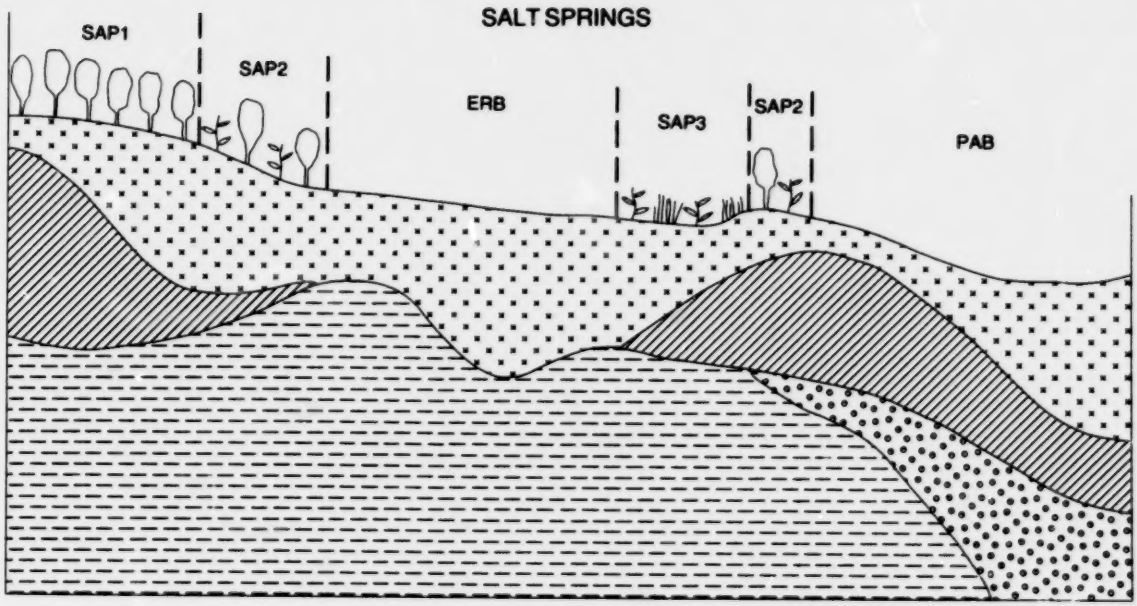
SAP1: Orthic Humo-Ferric Podzol. Where the area is cultivated, the upper horizons are generally mixed, darkened by crop residues, and thinned by erosion. The cultivated soils thus are classified as Orthic Sombric or Orthic Distric Brunisols.

SAP2: Gleyed Humo-Ferric Podzol. The cultivated soils of SAP2 map units are generally classified as Gleyed Sombric or Gleyed Dystric Brunisols.

SAP3: Rego Humic Gleysol.

Remarks

The SAP map units were formerly part of the Saltspring association mapped in Aalund and Wicklund (1950). In the present report, the former Saltspring association was divided into the ERB and SAP groups of map units.


SALT SPRINGS
SAP1
SAP2
ERB
SAP3
SAP2
PAB

SUSSEX

The Sussex (SSX) map units consist of soils formed on 0-100 cm of very friable sandy loam, silt loam, or loam, underlain by loose or very friable fluvial sand and gravel. Permeability is medium in the friable soil and high in the subsoil. Drainage ranges from moderately good to imperfect or poor. Slopes range from 0.5 to 9%.

Landform and soil material

The SSX group occurs on level and undulating fluvial deposits. The soil material consists of 0-100 cm of very friable sandy loam, silt loam, or loam, underlain by loose or very friable reddish brown fluvial sand and gravel. Coarse fragments, if present, are angular gravel of mixed origin.

Distribution, extent, and present land use

The SSX groups are located on the present floodplain of the rivers and brooks in the survey area (Fig. 10). The map units cover 4272 ha. Most of the area is cleared for agriculture; forages, corn, and horticultural crops are mainly grown. Forests composed of spruce, larch, and poplar or natural grasslands are found.

Range in characteristics

The very friable soil material ranges from 0 to 100 cm thick. It is usually stratified, with the general texture of sandy loam, silt loam, or loam, although layers of gravelly sandy loam, gravelly silt loam, or gravelly loam are found in places.

The loose or very friable sand or gravel is generally reddish brown, but in some areas it is brown or dark reddish brown.

The SSX5 map unit may be found with 1-10 cm of organic matter or muck at the surface.

Differentiating characteristics from other groups of map units

The SSX and BOT groups are differentiated on the basis of texture. The SSX group has 0-100 cm of sandy loam, silt loam, or loam, underlain by sand and gravel. The BOT group consists of more than 1 m of stratified silt loam or silty clay loam with lenses of sand or loamy sand.

The SSX group is differentiated from the GGW and KNC groups by taxonomy and landform. The SSX group is a fluvial (active) deposit and is classified in the Regosolic, Brunisolic, and Gleysolic orders. The GGW and KNC groups are glaciofluvial deposits, which are classified in the Podzolic Order.

Differentiating characteristics among SSX map units

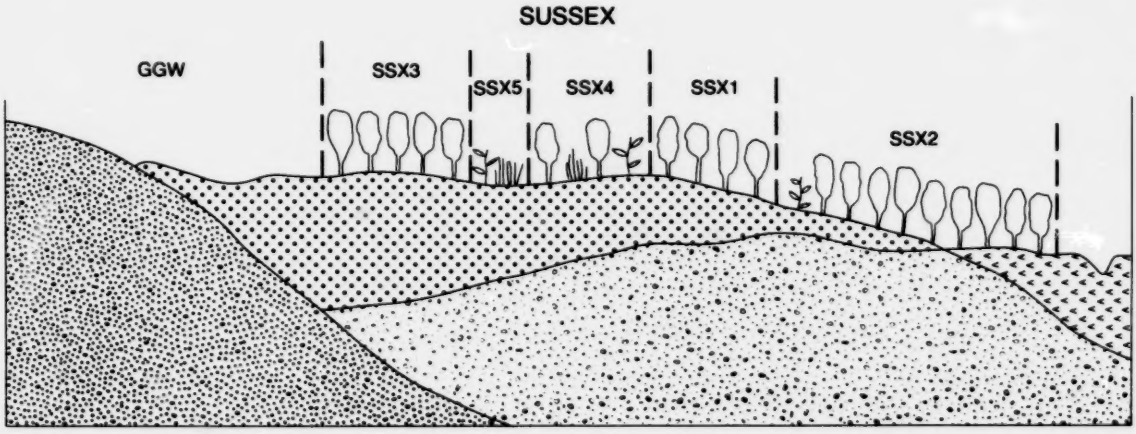
The SSX map units are differentiated by drainage and depth. SSX1 and SSX2 have 0-50 cm of sandy loam or silt loam over sand and gravel, but SSX3 and SSX4 have 50-100 cm. SSX1 and SSX3 are moderately well drained but SSX2 and SSX4 are imperfectly drained. SSX5 has 0-100 cm of sandy loam, silt loam, or loam, over sand and gravel, and is poorly drained.

Taxonomy of map units

SSX1 and 3: Orthic Sombric Brunisol or Cumulic Regosol.

SSX2 and 4: Gleyed Sombric Brunisol or Gleyed Cumulic Regosol.

SSX5: Rego Humic Gleysol.



TRACY

The Tracy (TCY) group of map units consists of soils developed on more than 1 m of friable sandy loam, loam, or gravelly loam till, underlain by sandstone or mudstone bedrock. Permeability is medium, drainage moderately good or imperfect, and slopes range from 2 to 30%.

Landform and soil material

The TCY group occurs on blanket moraines over undulating or hummocky bedrock. The soil material consists of more than 1 m of friable, dark red sandy loam, loam, or gravelly loam till. Coarse fragments are reddish brown channery or flaggy mudstones and sandstones.

Distribution, extent, and present land use

The TCY map units are found between McCully and Smith Creek, between Lower Millstream and Mount Middleton, and around Mount Hebron. Pockets also were found near Waterford, on the Parleeville road northwest of Apohaqui, near Urney, and north of Penobsquis (Fig. 9). The map units cover 916 ha and where the area is cleared for agriculture, forages and corn are grown. Where the area is forested, softwoods predominate.

Range in characteristics

The friable soil material is over 1 m deep. In some places, the sandstone or mudstone bedrock may be within 1 m of the surface.

The texture is sandy loam, loam, or gravelly loam. In some places, the texture may be silt loam or gravelly silt loam. The imperfectly drained map units are generally more finely textured (loam) than the moderately well drained map units.

Differentiating characteristics from other groups of map units

The TCY group is distinguished from the JEF group by coarse fragments and color. The TCY group contains red or reddish brown channery or flaggy mudstone or sandstone, with dark red soil material. The JEF group, on the other hand, contains angular gravel and gray or brown channery and flaggy sandstone fragments in dark reddish brown or reddish brown soil material.

Differentiating characteristics among TCY map units

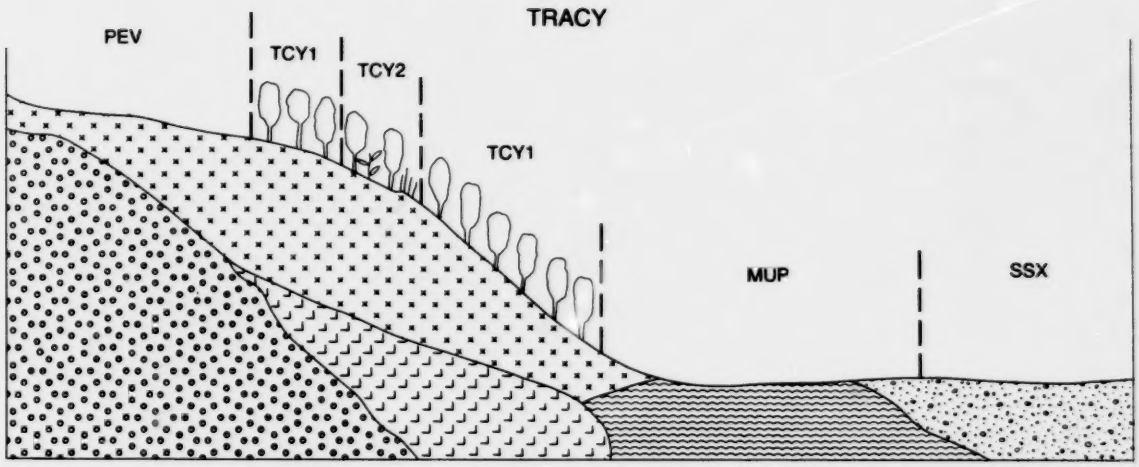
The TCY map units are differentiated by drainage. TCY1 map

units are moderately well drained, and TCY2 are imperfectly drained.

Taxonomy of map units

TCY1: Luvisolic Humo-Ferric Podzol. Where the area is cultivated, the upper horizons are generally mixed, darkened by crop residues and thinned by erosion. The cultivated soils thus are classified as Brunisolic Gray Luvisols.

TCY2: Gleyed Humo-Ferric Podzol. The cultivated soils are Gleyed Brunisolic Gray Luvisols.



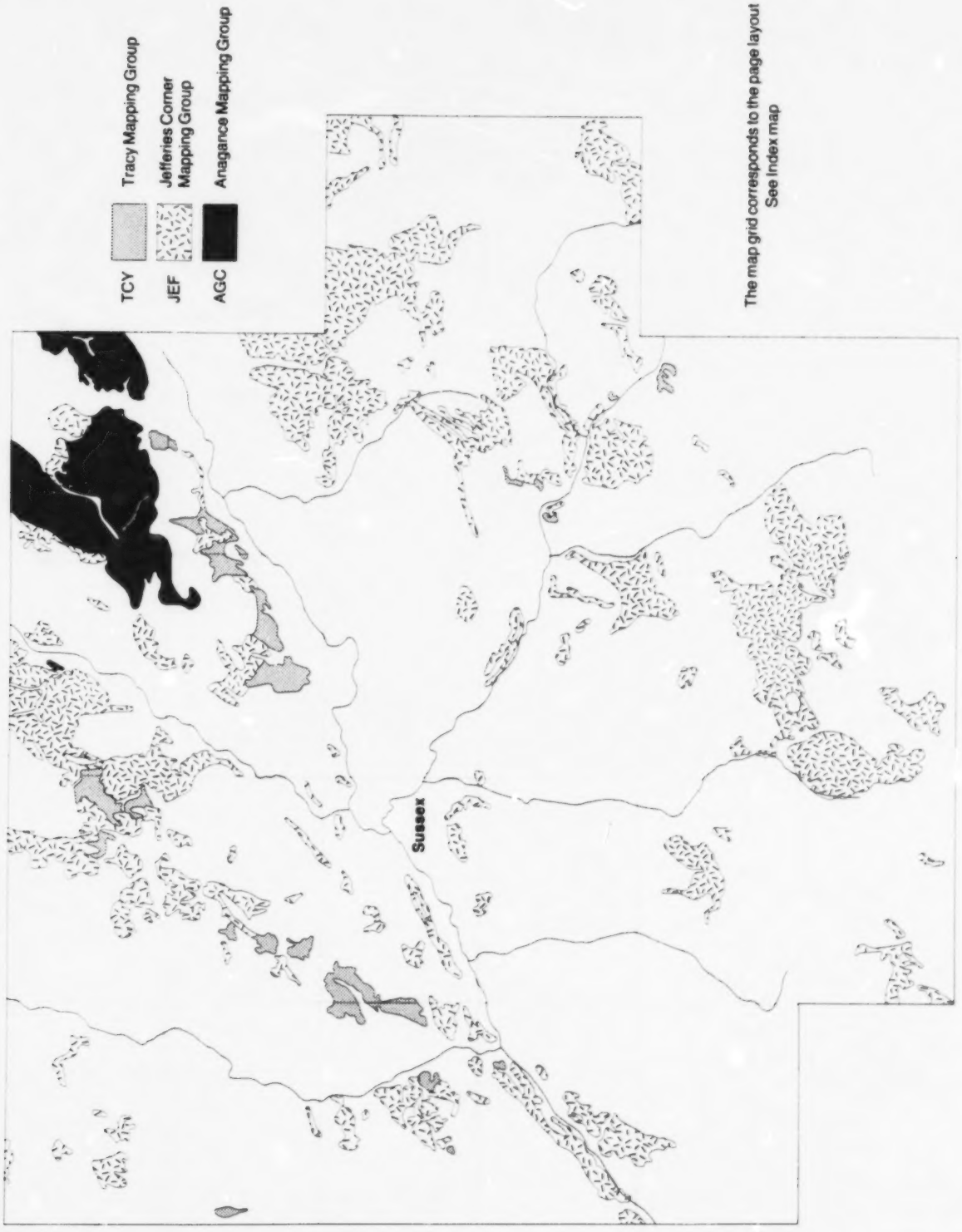


Fig. 9. Distribution of Anagance, Jeffries Corner, and Tracy groups of map units.

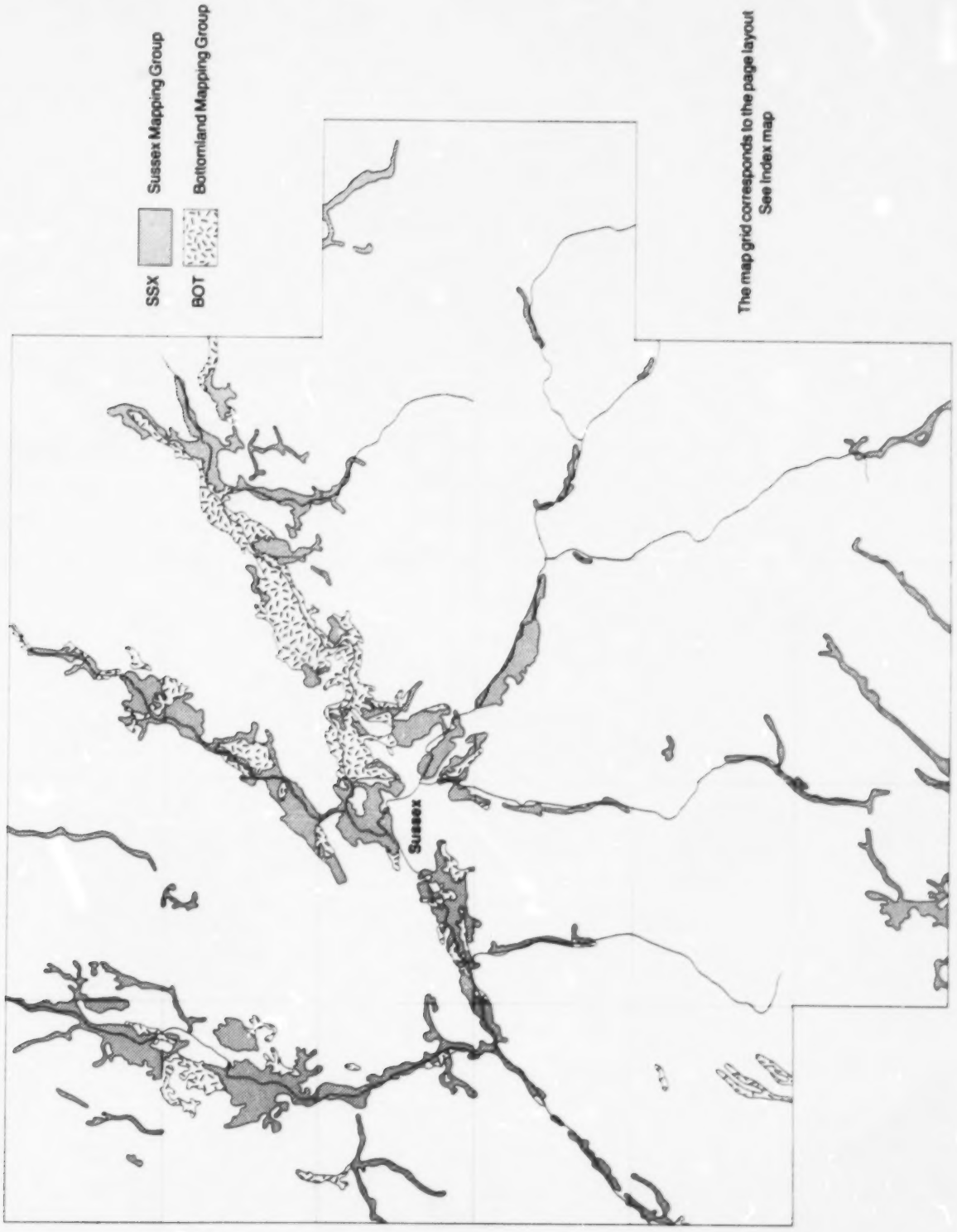


Fig. 10. Distribution of Bottomland and Sussex groups of map units.

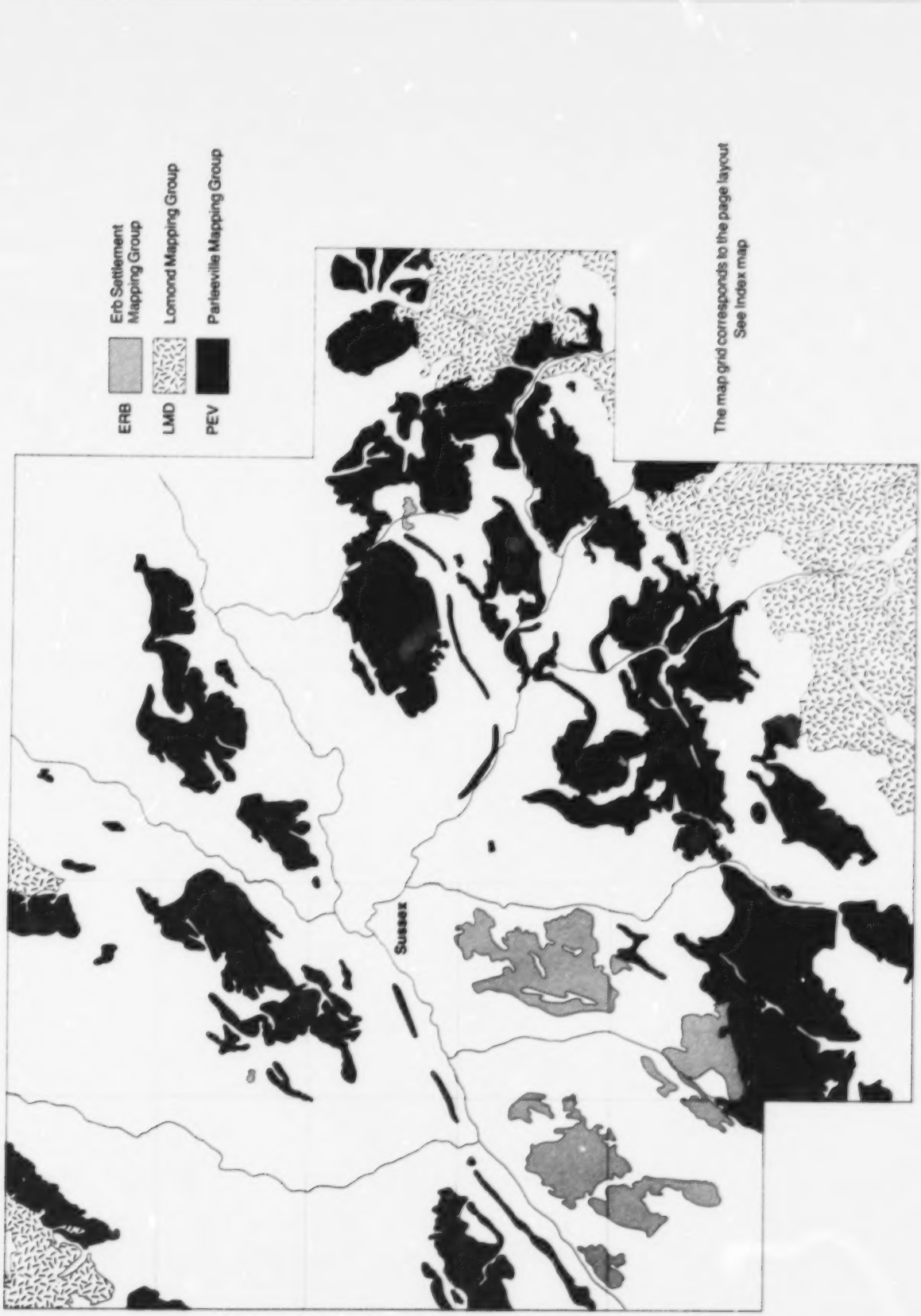


Fig. 11. Distribution of Erb Settlement, Lomond, and Parleeville groups of map units.

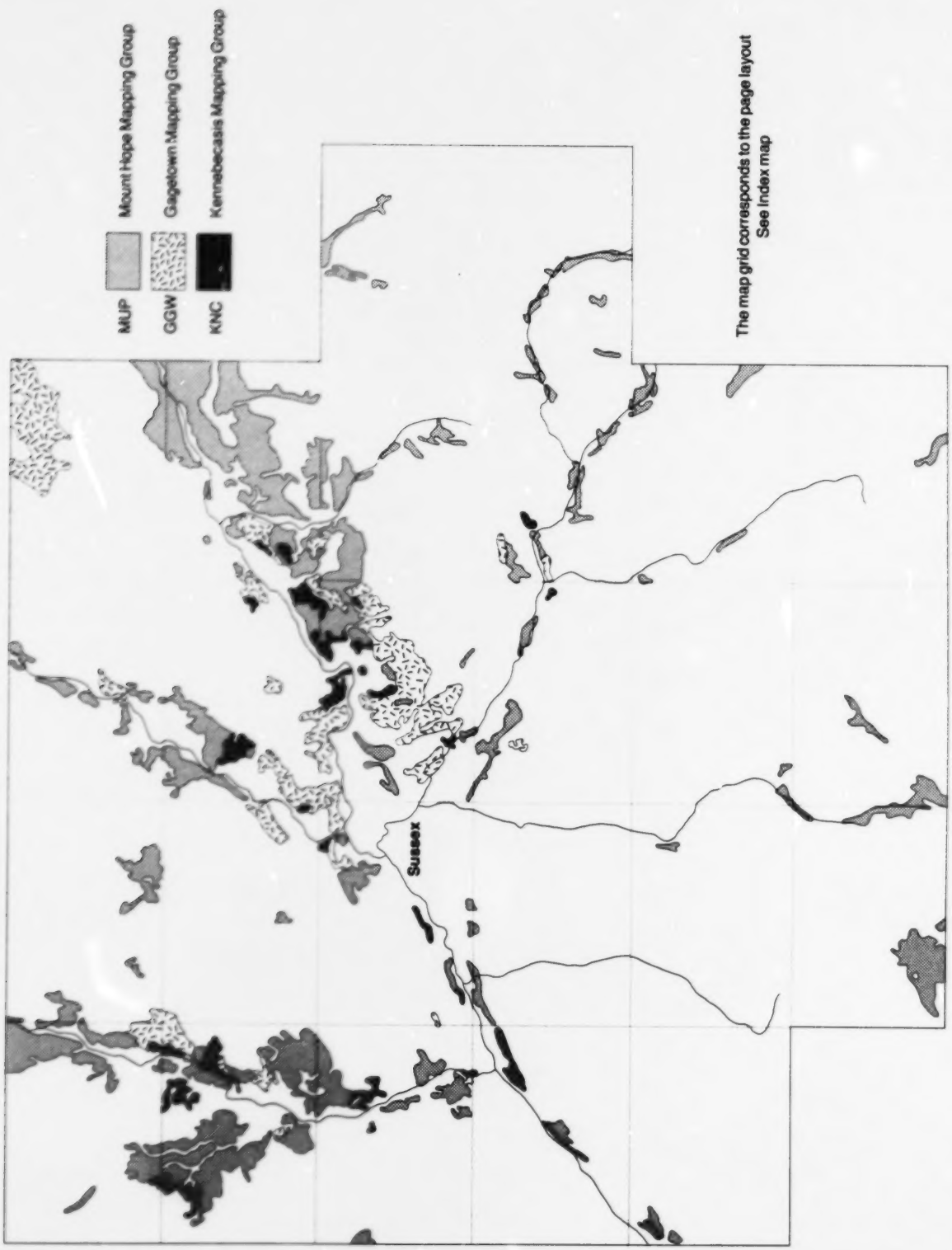


Fig. 12. Distribution of Gagetown, Kennebecasis, and Mount Hope groups of map units.

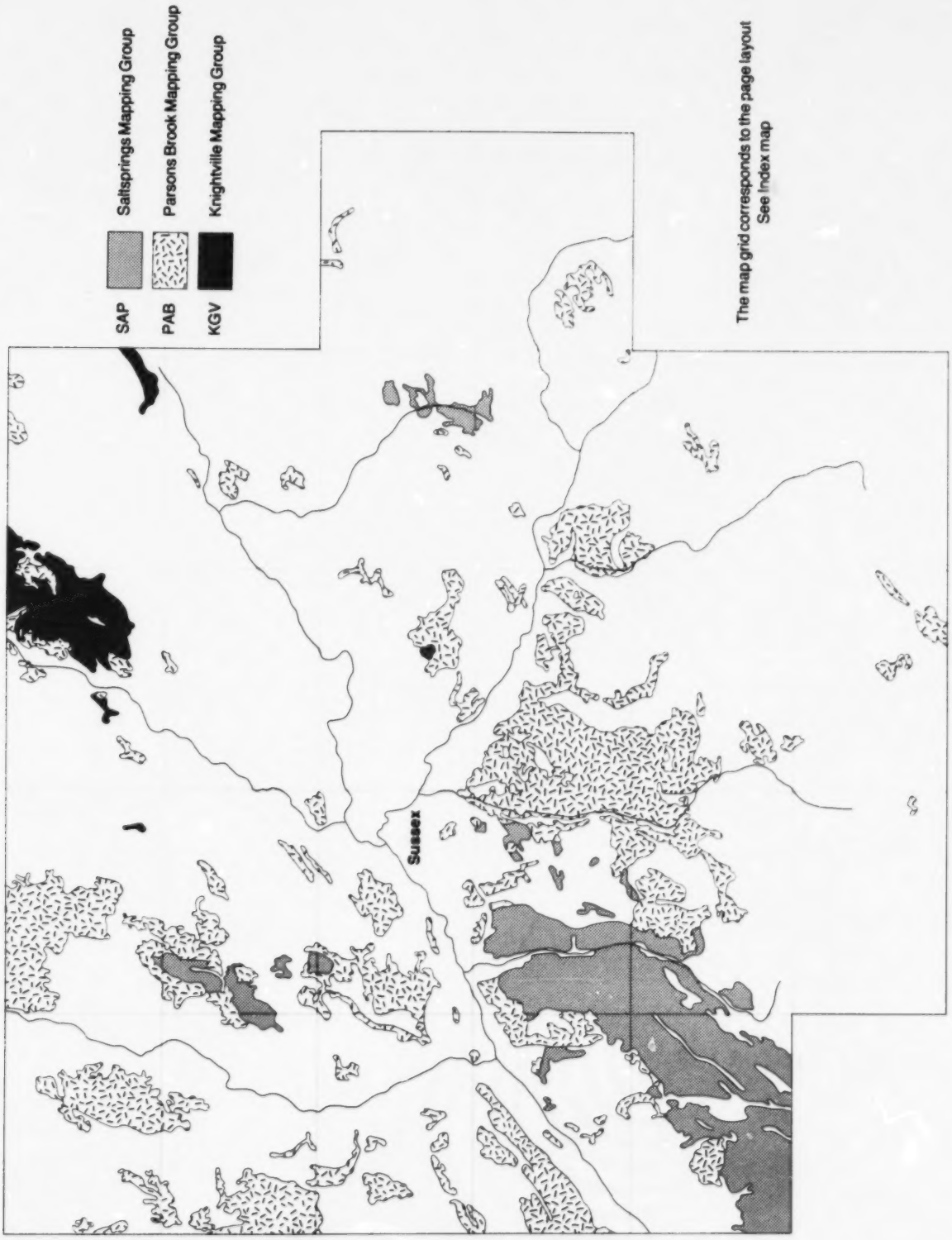


Fig. 13. Distribution of Knightville, Parsons Brook, and Saltsprings groups of map units.

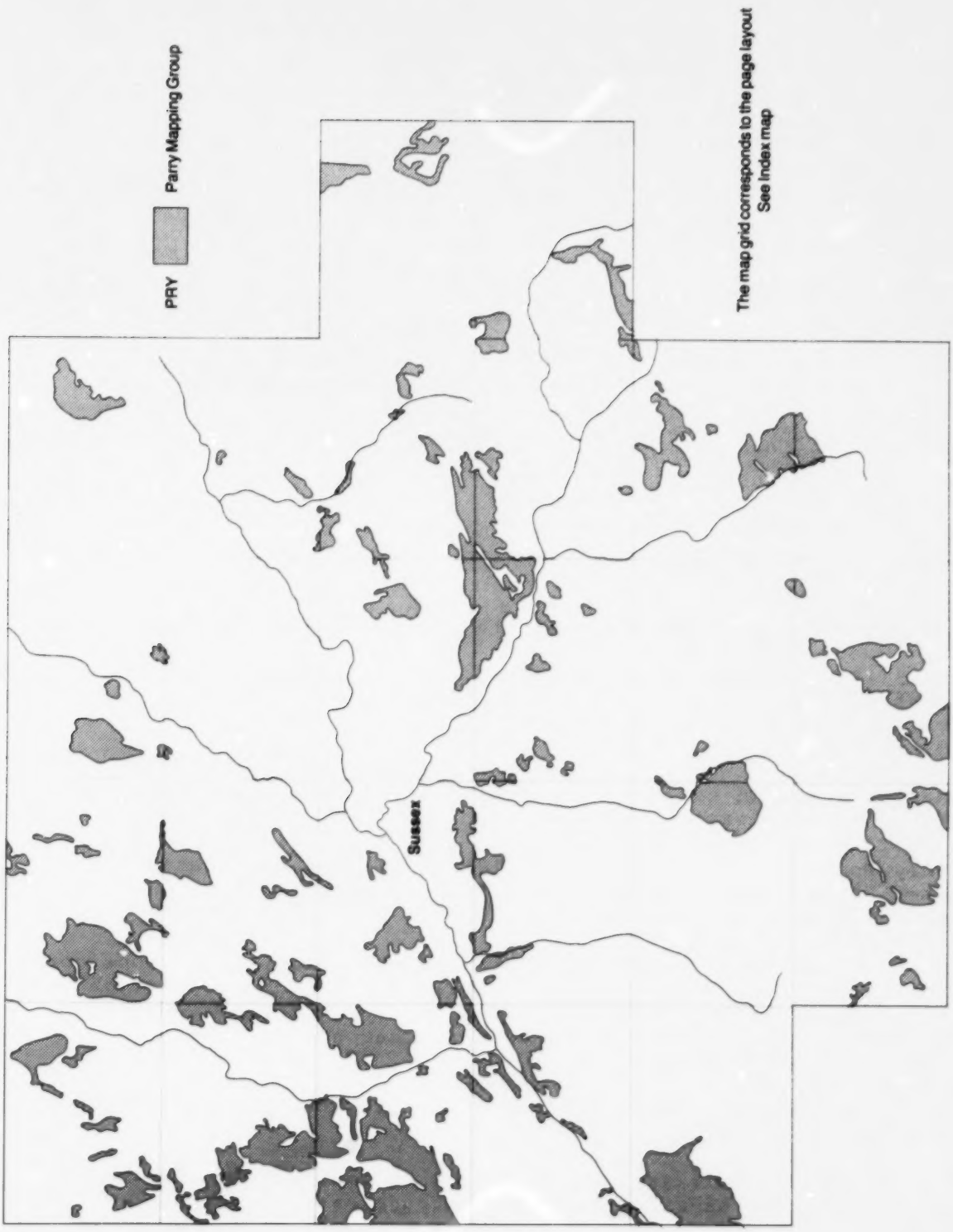


Fig. 14. Distribution of Parry group of map units.

MAP UNIT INTERPRETATIONS

This section deals with the interpretation and evaluation of soils for agriculture and for planners or engineers. The interpretations are expressed in one of three formats: suitability rating, degree of limitation, or a classification system.

The ratings for each use are based solely on soil and land criteria. In using the ratings the following should be considered:

(1) Interpretations do not eliminate the need for on-site evaluations. They serve only as a guide to planners and managers.

(2) The survey detail or intensity of inspections should be understood and carefully considered when assessing the information about any area (see section entitled "Mapping Methods").

USE OF TABLES

As previously mentioned, interpretations are expressed in three ways. The first (suitability rating) has four classes, as follows:

Good (G): Map units are suitable for the stated use.

Fair (F): Map units are suitable for the stated use if management follows the proper techniques; costs and risks should be carefully assessed.

Poor (P): Map units are poorly suited for the stated use. Managers should be aware that the initial development and continuing costs may be prohibitive.

Very Poor (VP): Map units should not be used for stated use. Input required is too great under existing conditions.

Guidelines are included showing the soil factors considered in establishing the suitability ratings. In the preparation of the tables, ratings were determined for each factor. Map units were then rated according to factors that had the most restriction on suitability.

The second format (degree of limitation) has four classes, as follows:

Slight (Sl): Soil areas have few or no limitations for the stated use, or have limitations that are easily overcome.

Moderate (M): Soil areas have few limitations of a moderate severity, which can be overcome with moderate management levels; input costs need to be carefully assessed.

Severe (S): Soil areas have one or more limitations serious enough to render the use questionable because of costs or continuing problems expected with use.

Unsuitable (U): Soil areas have one or more limitations that are severe enough to render the use unfeasible, because input required is too great under existing conditions.

Guidelines are included showing the soil properties considered in establishing degree and kind of limitations. The ratings from the guidelines are for general planning purposes only. Site inspection is required for specific use and identification of limitations. In preparing the soil limitation tables, the degree is determined by the most severe rating assigned to any one of the listed soil properties. The major soil properties do not have equal effect; each is considered separately in establishing class limits. A severe rating of one soil property establishes a general rating of severe for the soil use. Also, limitations can have an cumulative effect. If several soil properties are rated as moderate, then the general rating can be downgraded to severe; the requirements are arbitrary and left to the discretion of the interpreter.

The third format (classification system) uses a soil capability classification for agriculture uses.

AGRICULTURE

Interpretation of soil survey data for agriculture consists of the following:

(1) Soil capability for agriculture--a classification system developed for Canada Land Inventory (1965).

(2) Soil suitability for growing alfalfa for forages based on guideline criteria (Table 4).

(3) Soil suitability for growing winter wheat based on guideline criteria (Table 5).

(4) Soil suitability for growing spring cereals based on guideline criteria (Table 6).

The soil map units are rated for capability for agriculture and for suitability for alfalfa, winter wheat, and spring cereals in (Table 7).

The guidelines for alfalfa, winter wheat, and spring cereals were developed by reviewing current publications. A first draft was prepared and distributed to regional and national workers. Final guidelines were developed on the bases of their comments and suggestions. These ratings are therefore, judgements only. As research and development progress and more information is collected, changes in the ratings will occur.

Table 4. Soil suitability for growing alfalfa for forage.*

Soil factors	Ratings			
	Good	Fair	Poor	Very poor
Slope† (%)	0-9	10-15	16-30	Greater than 30≠
Drainage§	Well	Moderately well, rapidly	Imperfectly	Poorly, very poorly
Depth (cm) of friable soil‖	Greater than 100	50-100	20-50	Less than 20
Texture¶ (weighted average texture and modifier of the friable soil. Only common groups are listed)	GSCL, SCL, SiL, GSiL, L, GL, SL, GSL	CL, GCL, VGSiL, VGL, VGSL	SiC, SiCL, LS, GLS, VGLS, VGS, S, GS	G, C
Stoniness† class	1	2	3	4, 5
Rockiness† class	—	—	1, 2	3, 4, 5
Flooding duration** (consecutive days during growing season).	—	1-3	3-5	Greater than 5

* Ratings are based on the assumption that proper management which includes fertilization, liming, and weed control, is carried out. These ratings apply to the Maritime Provinces only.

† Based on United States Department of Agriculture (1967).

≠ 0-2% slopes of CL, SiC, and SiCL soils are downgraded because of ice sheets and frost heaving.

§ Based on Smith, (1964); Russell et al. (1978); Prince (1956); Heath et al. 1973.

‖ Based on Bolton (1962).

¶ Points considered in the texture ratings were water and nutrient holding capacity and winter survival of alfalfa in relation to texture only.

** Based on Heinrichs (1970) and Bolton (1962).

Table 5. Soil suitability for growing winter wheat.*

Soil factors	Ratings			
	Good	Fair	Poor	Very poor
Texture† (weighted average texture and modifier of friable soil. Only common groups listed)	L, Sil, SL, SCL,	CL,≠ SiCL,≠ LS	C,≠ SiC≠ S	Gravel and very gravelly soils
Drainage	Well and moderately well	Rapidly and imperfectly	Poorly	Very poorly
Depth§ to pore discontinuity (cm)	Greater than 50		20-50	Less than 20
Slope‖ (%)	2-5	0-2, 6-9	10-15	Greater than 15
Stoniness class# (stones >25 cm)	0, 1	2	3	Greater than 3
Rockiness class#	0	0	1	Greater than 1
Flooding duration after cold hardening of plant** (days)	0	0-2	3-14	Greater than 14
Flooding duration (consecutive days during growing season)	0	0-2	3-7	Greater than 7

* Ratings are based on the assumption that proper management, which includes fertilization, liming, and weed control, is carried out. These ratings apply to the Maritime Provinces only. Because climate determines, to a large degree, whether winter wheat can be grown, and because this guideline does not attempt to rate climate, a climatic factor must be considered when determining whether or not to grow winter wheat.

† Soils with gravelly textures (20-50% gravel by volume) rate fair, with the exception of gravelly loam and gravelly silt loam, which remain well, and gravelly sand and gravelly loamy sand, which are rated poor. Very gravelly soil textures (50-90% gravel by volume) are rated poor.

≠ CL, SiC, C, and SiCL soils on 0-2% slopes are rated as very poor because of ice sheets and frost heaving. Imperfectly drained CL and SiCL soils are downgraded to poor because of frost heaving.

§ Depth of soil overlying a fragipan, dense subsoil, bedrock, or contrasting material that would offer resistance to root or moisture movement.

‖ Based on United States Department of Agriculture (1967) and Sharipov et al. (1978).

Based on Day (1982).

** Based on White (1976); Andrew and Pomeroy (1981).

Table 6. Soil suitability for growing spring cereals.*

Soil factors	Ratings			
	Good	Fair	Poor	Very Poor
Soil texture† (weighted average texture of the friable soils; only common groups are listed)	L, SiL, SCL, SL	SiCL, CL	LS, S, C, SC, SiC	Gravels and very gravelly soils
Drainage	Well and moderately well	Imperfectly and rapidly	Poorly	Very poorly
Depth (cm) to pore discontinuity	Greater than 50	20-50	—	Less than 20
Slope≠ (%)	0-5	6-9	10-15	Greater than 15
Stoniness class§ (stones >25 cm)	0, 1	2	3	4,5
Rockiness class§	0	0	1	Greater than 1
Flooding duration‖ (consecutive)	0	0-2	3-7	Greater than 7

* Ratings are based on the assumption that proper land management which includes fertilization, weed control, and crop rotation, is carried out.

† Soils with gravelly textures (20-50% gravel by volume) are rated fair, with the exception of gravelly loam and gravelly silt loam which remain good, and gravelly sand and gravelly loamy sand, which are rated poor. Very gravelly soil textures (50-90%) are rated poor.

≠ Based on United States Department of Agriculture (1967).

§ Based on Day (1982).

‖ Based on White (1976); Andrew and Pomeroy (1981).

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals.

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
AGC1	c*	4m†	P‡	F	P
	d	4mt	P	P	P
	e	5mt	P	P	P
	f	7mt	P	VP	VP
BOT1	b	4-5	VP	P-VP	P
	c	4-5	VP	P-VP	P
BOT2	b	5iw	VP	VP	VP
	c	5iw	VP	VP	VP
ERB1	c	3r	F	G	G
	d	4tr	F	F	F
	e	5tr	F	P	P
	f	5tr	P	VP	VP
ERB2	c	4-3	P-F	F-G	F-G
	d	5-4	P-F	F	F
	e	5	P-F	P	P
	f	5	P	VP	VP
ERB3	c	5wr	VP	P	P
	d	5wr	VP	P	P
	e	5wr	VP	VP	P
G	variable	7t	VP	VP	VP
GGW1	b	4m	P	F-P	P
	c	4m	P	F-P	P
	d	4mt	P	F-P	P
	e	5mt	P	P	P
	f	7mt	P	VP	VP
GGW2	b	3mw	P	F	F
	c	3mw	P	F	F
	d	3mw	P	F	F
GGW3	b	3m	G	F	G
	c	3m	G	G	G
	d	3mt	G	F	F
	e	4mt	F	P	P
	f	5mt	P	VP	VP

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals (continued).

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
JEF1	c	2fc	G	G	G
	d	3t	G	F	F
	e	4t	F	P	P
	f	5t	P	VP	VP
	g	7t	VP	VP	VP
JEF2	c	2-3	F-P	G-F	G-F
	d	3-4	F-P	F	F
	e	4-5	F-P	P	P
	f	5	P	VP	VP
JEF3	c	3w	P	F	F
	d	4wt	P	F	F
	e	5wt	P	P	P
	f	5wt	P	VP	VP
KGV1	d	4dt	P	P	F
	e	5dt	P	P	P
	f	5dt	P	VP	VP
	g	7td	VP	VP	VP
KGV2	c	4wd	P	P	F
	d	4wd	P	P	F
	e	5wt	P	P	P
KGV3	c	5wd	VP	P	P
	d	5wd	VP	P	P
KNC1	b	4m	P-F	F-P	F-P
	c	4m	P-F	F-P	F-P
	d	4mt	P-F	F-P	F-P
	e	5mt	P-F	P	P
	f	7mt	P	VP	VP
LMD1	c	3-4p	F-P	P	P
	d	4pt	F-P	P	P
	e	5pt	F-P	P	P
	f	7pt	P	VP	VP
LMD2	c	3-4	F-P	P	P
	d	4	F-P	P	P
	e	5	F-P	P	VP
	f	7	P	VP	VP
MUP1	c	4d	P	P	R
	d	4dt	P	P	F
	e	5dt	P	P	P

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals (continued).

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
MUP2	b	4wd	P	P-VP	F
	c	4wd	P	P	F
	d	4wd	P	P	F
MUP3	b	5wd	VP	VP	P
	c	5wd	VP	P	P
	d	5wt	VP	P	P
PAB1	c	4d	P	P	F
	d	4dt	P	P	F
	e	5dt	P	P	P
	f	5dt	P	VP	VP
	g	7dt	VP	VP	VP
PAB2	c	4	P	P	F
	d	4	P	P	F
	e	5	P	P	P
	f	7	P	VP	VP
PAB3	c	4wd	P	P	F
	d	4wd	P	P	F
	e	5dt	P	P	P
	f	7td	P	VP	VP
PAB4	b	4-5	P-VP	P	F-P
	c	4-5	P-VP	P	F-P
	d	4-5	P-VP	P	P-P
PAB5	b	5wd	VP	P	P
	c	5wd	VP	P	P
	d	5wd	VP	P	P
	e	5wt	VP	P	P
	f	7wt	VP	VP	VP
PAB6	c	3d	F	G	G
	d	4dt	F	F	F
	e	5dt	F	P	P
	f	7dt	P	VP	VP
PAB7	c	4wd	P	F	F
	d	4wd	P	F	F
	e	5dt	P	P	P
	f	7td	P	VP	VP

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals (continued).

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
PEV1	c	4r	P	P	F-P
	d	4tr	P	P	F-P
	e	5tr	P	P	P
	f	7tr	P	VP	VP
	g	7tr	VP	VP	VP
PEV2	c	4mr	P	P	VP
	f	7tr	P	VP	VP
	g	7tr	VP	VP	VP
	h	7tr	VP	VP	VP
PEV3	c	3r	F	F	F
	d	4tr	F	F	F
	e	5tr	F	P	P
	f	7tr	P	VP	VP
	g	7tr	VP	VP	VP
PEV4	c	3mr	P	P	VP
	d	4tr	P	P	VP
	e	5tr	P	P	VP
	f	7tr	P	VP	VP
PEV5	c	3-4	F-P	F-P	P
	d	4	F-P	F-P	P
	e	5	F-P	P	P
	f	7	P	VP	VP
PRY1	c	3d	P	P	F
	d	4dt	P	P	F
	e	5dt	P	P	P
	f	7dt	P	VP	VP
PRY2	c	3-4	P	P	F
	d	4	P	P	F
	e	5	P	P	P
PRY3	c	4dw	P	P	F
	d	4dt	P	P	F
	e	5dt	P	P	P
PRY4	c	3d	F	G-F	G-F
	d	4dt	F	F	F
	e	5dt	F	P	P
	f	7dt	P	VP	VP

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals (continued).

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
PRY5	c	3-4	F-P	G-F	G-F
	d	4	F-P	F	F
	e	5	F-P	P	P
	f	7	P	VP	VP
PRY6	c	4dw	P	F	F
	d	4dt	P	F	F
	e	5dt	P	P	P
	f	7dt	P	VP	VP
PRY7	c	5wd	VP	P	P
	d	5wd	VP	P	P
	e	5wt	VP	P	P
	f	7wt	VP	VP	VP
SAP1	c	4d	F-P	F-P	F
	d	4dt	F-P	F-P	F
	e	5dt	F-P	P	P
	f	5dt	P	VP	VP
SAP2	c	4wd	P	F-P	F
	d	4wt	P	F-P	F
	e	5dt	P	P	P
SAP3	b	5dw	VP	P	P
	c	5dw	VP	P	P
	d	5dw	VP	P	P
	e	5wt	VP	P	P
SSX1	b	2i	F-P	F	F
	c	2i	F-P	F	F
	d	3t	P	F	F
SSX2	b	3wi	P	F	F
	c	3wi	P	F	F
	d	3t	P	F	F
SSX3	b	2i	F	F	G
	c	2i	F	G	G
SSX4	b	3wi	P	F	F
	c	3wi	P	F	F
	d	3t	P	F	F
SSX5	b	5iw	VP	P	P
	c	5iw	VP	P	P
	d	5wt	VP	P	P

Table 7. Capability classes and suitability for alfalfa, winter wheat, and spring cereals (concluded).

Map unit	Slope	Agriculture	Alfalfa	Winter wheat	Spring cereals
TCY1	c	2fc	F	G	G
	d	3t	F	F	F
	e	4t	F	P	P
	f	5t	P	VP	VP
TCY2	c	3w	P	F	F
	d	4wt	P	F	F
	e	4wt	P	P	P

* Slope classes:
a (0-0.5%), b (0.5-2.5%), c (2-5%),
d (6-9%), e (10-15%), f (16-30%),
g (31-45%), h (46-70%), i (71-100%),
j (>100%)

† Agricultural capability classes
Soils in this class have the following characteristics:

(1) no significant limitations in use for crops;
(2) moderate limitations that restrict the range of crops or require moderate conservation practices;
(3) moderately severe limitations that restrict the range of crops or require special conservation practices;
(4) severe limitations that restrict the range of crops or require special conservation practices or both;
(5) very severe limitations that restrict their ability to produce perennial forage crops; improvement practices are not feasible.
(6) can provide only perennial forage crops; improvement practices are not feasible.
(7) cannot be used for arable culture or permanent pasture.

Agricultural capability subclasses

Subclasses are divisions within classes that have the same kind of limitations for agricultural use. The subclasses are:
m - moisture limitation
t - topography
i - inundation by streams and lakes
w - excess water
r - consolidated bedrock near the surface
f - low fertility
c - adverse climate
d - undesirable soil structure or low permeability, or both

G (Good), F (Fair), P (Poor), VP (Very Poor).

ENGINEERING

Land use planning is an increasingly important aspect of human activity. In selecting sites for nonfarm use or urban development, planners should consider the suitability of each soil in order to make the best choices and avoid mistakes that result in loss of valuable agricultural land.

This section presents interpretations of the map units of the area for waste disposal by septic tank absorption fields, for housing, and for roads. Such interpretations allow the selection of potential areas that have the least limitation for the uses stated.

Soil limitation for septic tank absorption fields

A septic tank absorption field is designed to dispose of effluent and sewage by soil absorption. The system distributes sewage effluent uniformly through the natural soil medium by a subsurface tile system. In Table 8, each soil is rated according to its ability to absorb and filter the effluent. The major soil properties that affect the movement of effluent from such a field system are the permeability of the soil at and below the depth of the tile line and the slope. Other criteria used for rating the soils are associated with either construction and maintenance or with preventing the contamination of the water supply, streams, rivers, and lakes. The major properties considered are depth to bedrock, stoniness, slope, permeability, depth to seasonal high water table, and flooding hazard.

See Table 8 for criteria used in rating map units for septic tanks.

Soil limitation for housing

The soil limitation ratings given in Table 9 apply to single-family dwellings and other structures with similar foundation requirements (buildings of three storeys or less). The soils are rated for buildings with basements. Standard construction practices are assumed, such as damp-proofing and installation of foundation drains. In rating soils for housing, the properties that affect suitability for foundations are emphasized. Properties influencing the ease or difficulty of excavation and construction are evaluated for both the building and the installation of utility lines. Excluded from the ratings for housing are soil suitability for septic tanks, access roads, water supply potential, and desirability of location. On-site investigations are necessary for specific placement of buildings and utility lines as well as for detailed design of foundations.

Soil properties that affect the rating are those related to capacity to support load and resist settlement under load and those related to ease of excavation. Soil wetness, flooding, plasticity and texture, shrink-swell potential, and potential frost action affect the ability of the soil to support a load. Those that affect excavation are wetness, slope, depth to bedrock, and stoniness.

Criteria used in rating the map units for housing are shown in Table 9.

Soil limitation for roads

The limitation ratings given in Table 10 apply to the use of soils for construction and maintenance of improved local roads and streets that have all-weather surfacing, commonly of asphalt, and that are expected to carry automobile traffic all year. Excluded from consideration are highways designed for fast-moving heavy trucks. The ratings cannot be substituted for basic soil data or for on-site investigation.

See Table 10 for criteria used in rating map units for roads and Table 11 for soil limitations ratings for septic tanks absorption fields, houses with basements, and roads.

Table 8. Soil limitation for septic tank absorption fields.*

Major soil properties influencing uses	Degree of limitation		
	Slight to none	Moderate	Severe
Permeability† (subsoil) (cm/h)	greater than 2.0 but less than 12≠	2.0-0.5	less than 0.5 or greater than 12≠
Depth to seasonal high groundwater table§ (m)	greater than 1.5 (rapidly drained)	1.5-.5 (well and moderately well drained)	less than 0.5 (imperfectly and poorly drained)
Depth to bedrock (m)	greater than 1.5	1.5-1	less than 1
Slope‖ (%)	less than 9 (a, b, c, d)	9-15 (e)	15-30 (f)
Flooding hazard	not subject to flooding	rating not used	subject to flooding (flooding once in 5 years or less often)
Surface stoniness‖	S0, S1, S2 (stones 2-10 m apart or more)	S3 (stones 0.5-2 m apart)	S4, S5 (stones 0.1-0.5 m apart or less)

A fourth degree of soil limitation is also defined for septic tanks:

Unsuitable: slopes greater than 30%
permeability greater than 25 cm/hr
flooding more than once in 5 years
depth to bedrock less than 50 cm
organic soils
permanently wet

* Based on Rose et al. (1969), United States Department of Agriculture (1976); Holland and Coen (1976).

† This rating refers to permeability (as determined by the constant-head method using core samples) of the subsoil at and below the depth of the tile line.

≠ Soils with permeability rates greater than 12 cm/h are considered possible groundwater pollution hazards.

§ The depth to the seasonal high water-table should be at least 1.0 m below the depth of the tile (which is assumed to be at a depth of at least 0.5 m). Although the presence of a high groundwater table level, either continuous (true) or perched, is a serious problem to the functional operation of a septic tank, the continuous water table also presents the hazard of polluting the groundwater. Perched water tables do not pose this problem and can be rated more leniently.

‖ Class definitions based on Canada Soil Survey Committee (1976).

Table 9. Soil limitations for houses with basements.*

Major soil properties influencing uses	Degree of limitation		
	Slight to none	Moderate	Severe
Depth to seasonal high water table (m)	greater than 1.2 (well and rapidly drained)†	1.2-0.5 (moderately well drained)	less than 0.5 (imperfectly and poorly drained)
Slope≠ (%)	0-9 (a,b,c,d)	9-15 (e)	15-30 (f)
Depth to bedrock§ (m)	greater than 1.5	1.0-1.5	less than 1
Flood hazard	no flooding	no flooding	subject to flooding (floods once in 20 years or less often)
Unified soil group†	GW, GP, SW, SP, GM, GC, SM, SC, CL, (PI‖, less than 15)	ML, CL (PI‖, greater than 15)	CH, MH, OL, OH
Potential frost action#	Low	Moderate	High
well & imperfectly drained	GW, GP, SW, SP	GM, GC, SM, CL, SC	ML, MH
poorly drained	GW, GP	SW, SP, GC, CL	GM, SM, SC, ML, MH
Surface stoniness§	S0, S1, S2 (stones 2-10 m apart and greater)	S3 (stones 0.5-2 m apart)	S4, S5 (stones 0.1-0.5 m apart and less)

A fourth degree of soil limitation is also defined for housing:

Unsuitable: slopes greater than 30%
permanently wet soils
flooding more than once in 20 years
organic soils

* Limitation based on Rose (1969); United States Department of Agriculture (1976); Holland and Coen (1976).

† This item estimates the soil's ability to withstand applied loads.

≠ Class definitions from Canada Soil Survey Committee, Subcommittee on Soil Classification. The Canadian system of soil classification. Can. Dep. Agric. Publ. 1646. Supply and Services Canada, Ottawa, Ont., 1978.

§ Where the bedrock is soft and easily excavated, therefore having only a moderate influence on construction costs, ratings were raised by one class, e.g., soft bedrock 1.0-1.5 m rated slight to none.

‖ Plasticity index.

Potential frost action is based on United States Department of Agriculture (1976). However, it has been slightly modified. Proper house construction should include preventive measures to reduce or eliminate most frost heaving.

Table 10. Soil limitations for local roads and streets (all-weather surfaces).*

Major soil properties influencing uses	Degree of limitation		
	Slight to none	Moderate	Severe
Depth to seasonal high water table (m)	greater than 1 (rapidly and well drained)†	1-0.2 (moderately well and imperfectly drained)	less than 0.2 (poorly and very poorly drained)
Slope†≠ (%)	0-5 (a, b, c)	5-15 (d, e)	15-20 (part of f)
Depth to bedrock§ (m)	greater than 1.0	0.5-1.0	less than 0.5
Surface stoniness†	S0, S1, S2 (stones 2-10 m apart and greater)	S3 (stones 0.5-2 m apart)	S4, S5 (stones 0.1-0.5 m apart and less)
Flood hazard	not subject to flooding	subject to occasional flooding (less than once in 5 years)	subject to flooding (more than once in 5 years)
Subgrade‖			
AASHO#	A-1, A-2, A-3	A-4, A-5	A-6, A-7
Unified**	GW, GP, SW, SP, GM†† GC,†† SM,†† SC††	CL ($PI^{\neq\neq}$ less than 15)	CL ($PI^{\neq\neq}$ greater than 15), ML, CH, MH, OH, OL
Susceptibility to frost action§§	low	moderate	high
well to imperfectly drained	GW, GP, SW, SP	GM, GC, SM, SC, CL	ML, MH
poorly drained	GW, GP	SW, SP, GC, CL	GM, SM, SC, ML, MH

A fourth degree of soil limitation is also defined for local roads and streets:

Unsuitable: slopes greater than 20%
yearly flooding
organic soils

* Limitation based on Rose et al. (1969); United States Department of Agriculture (1976); Holland and Coen (1976)

† Class definitions from Canada Soil Survey Committee (1978).

≠ Because of winter conditions, limitation classes for slope have been altered from standards as set in references.

Table 10. Soil limitations for local roads and streets (all-weather surfaces) (concluded).

§ Where the bedrock is soft and easily excavated, with therefore only a moderate influence on construction costs, ratings were raised one class, e.g., soft bedrock 0.5-1.0 m rated slight to none.

‖ This rates the general load-carrying capacity and service characteristics of the soil as it applies to subgrades or roadbeds.

Ratings according to AASHO Designation D3283-73 taken from General Rating as Subgrade, Table V-2, The Asphalt Institute (1963).

** Unified soil group ratings according to Designation D2487-69.

†† Downgrade limitation to moderate if more than 30% passes No. 200 sieve.

Plasticity index.

§§ Susceptibility to frost action based on United States Department of Agriculture (1976). Some modifications were made. Proper road construction includes preventive measures that minimize or eliminate frost activity.

Table 11. Soil limitation ratings for septic tanks, houses with basements, and roads.

Map unit	Slope	Septic tank absorption fields	Houses	Roads
AGC1	c	S1*	S1	S1
	d	S1	S1	M
	e	M	M	M
	f	S	S	S-U
BOT1	b	U	U	U
	c	U	U	U
BOT2	b	U	U	U
	c	U	U	U
ERB1	c	M	M	M
	d	M	M	M
	e	M	M	M
	f	S	S	S-U
ERB2	c	S-M	S-M	M
	d	S-M	S-M	M
	e	S-M	S-M	M
	f	S	S	S-U
ERB3	c	S	S	S
	d	S	S	S
	e	S	S	S
G	variable	U	U	U
GGW1	b	U	S1	S1
	c	U	S1	S1
	d	U	S1	M
	e	U	M	M
	f	U	S	S-U
GGW2	b	U	S	M
	c	U	S	M
	d	U	S	M
GGW3	b	U	S1	S1
	c	U	S1	S1
	d	U	S1	M
	e	U	M	M
	f	U	S	S-U

Table 11. Soil limitation ratings for septic tanks, houses with basements, and roads (continued).

Map unit	Slope	Septic tank absorption fields	Houses	Roads
JEF1	c	M	Sl	Sl
	d	M	Sl	M
	e	M	M	M
	f	S	S	S-U
	g	U	U	U
JEF2	c	M-S	M-S	M
	d	M-S	M-S	M
	e	M-S	M-S	M
	f	S	S	S-U
JEF3	c	S	S	M
	d	S	S	M
	e	S	S	M
	f	S	S	S-U
KGV1	d	S	M	S
	e	S	M	S
	f	S	S	S-U
	g	U	U	U
KGV2	c	S	S	S
	d	S	S	S
	e	S	S	S
KGV3	c	S	S	S
	d	S	S	S
KNC1	b	U	S1	S1
	c	U	S1	S1
	d	U	S1	M
	e	U	M	M
	f	U	S	S-U
LMD1	c	M	M	Sl-M
	d	M	M	M
	e	M	M	M
	f	S	S	S-U
LMD2	c	M-S	M-S	M
	d	M-S	M-S	M
	e	M-S	M-S	M
	f	S	S	S-U
MIP1	c	S	M	S
	d	S	M	S
	e	S	M	S

Table 11. Soil limitation ratings for septic tanks, houses with basements, and roads (continued).

Map unit	Slope	Septic tank absorption fields	Houses	Roads
MUP2	b	S	S	S
	c	S	S	S
	d	S	S	S
MUP3	b	S	S	S
	c	S	S	S
	d	S	S	S
PAB1	c	S	M	M
	d	S	M	M
	e	S	M	M
	f	S	S	S-U
	g	U	U	U
PAB2	c	S	M-S	M
	d	S	M-S	M
	e	S	M-S	M
	f	S	S	S-U
PAB3	c	S	S	M
	d	S	S	M
	e	S	S	M
	f	S	S	S-U
PAB4	b	S	S	M-S
	c	S	S	M-S
	d	S	S	M-S
PAB5	b	S	S	S
	c	S	S	S
	d	S	S	S
	e	S	S	S
	f	S	S	S-U
PAB6	c	S	M	M
	d	S	M	M
	e	S	M	M
	f	S	S	S-U
PAB7	c	S	S	M
	d	S	S	M
	e	S	S	M
	f	S	S	S-U
PEV1	c	U	S	S
	d	U	S	S
	e	U	S	S
	f	U	S	S-U
	g	U	U	U

Table 11. Soil limitation ratings for septic tanks, houses with basements, and roads (continued).

Map unit	Slope	Septic tank absorption fields	Houses	Roads
PEV2	c	U	S	S
	f	U	S	S-U
	g	U	U	U
	h	U	U	U
PEV3	c	S	M	M
	d	S	M	M
	e	S	M	M
	f	S	S	S-U
	g	U	U	U
PEV4	c	S	M	M
	d	S	M	M
	e	S	M	M
	f	S	S	S-U
PEV5	c	S	M-S	M
	d	S	M-S	M
	e	S	M-S	M
	f	S	S	S-U
PRY1	c	M	M	M
	d	M	M	M
	e	M	M	M
	f	S	S	S-U
PRY2	c	M-S	M-S	M
	d	M-S	M-S	M
	e	M-S	M-S	M
PRY3	c	S	S	M
	d	S	S	M
	e	S	S	M
PRY4	c	M	M	M
	d	M	M	M
	e	M	M	M
	f	S	S	S-U
PRY5	c	M-S	M-S	M
	d	M-S	M-S	M
	e	M-S	M-S	M
	f	S	S	S-U
PRY6	c	S	S	M
	d	S	S	M
	e	S	S	M
	f	S	S	S-U

Table 11. Soil limitation ratings for septic tanks, houses with basements, and roads (concluded).

Map unit	Slope	Septic tank absorption fields	Houses	Roads
PRY7	c	S	S	S
	d	S	S	S
	e	S	S	S
	f	S	S	S-U
SAP1	c	S	M	M
	d	S	M	M
	e	S	M	M
	f	S	S	S-U
SAP2	c	S	S	M
	d	S	S	M
	e	S	S	M
SAP3	b	S	S	S
	c	S	S	S
	d	S	S	S
	e	S	S	S
SSX1	b	U	U	M-S
	c	U	U	M-S
	d	U	U	M-S
SSX2	b	U	U	S
	c	U	U	S
	d	U	U	S
SSX3	b	U	U	M-S
	c	U	U	M-S
SSX4	b	U	U	S
	c	U	U	S
	d	U	U	S
SSX5	b	U	U	S
	d	U	U	S
	d	U	U	S
TCY1	c	M	M	M
	d	M	M	M
	e	M	M	M
	f	S	S	S-U
TCY2	c	S	S	M
	d	S	S	M
	e	S	S	M

* Sl (Slight), M (Moderate), S (Severe), U (Unsuitable).

METHODS OF ANALYSIS

This section lists the profile description and the physical and chemical analyses of some map units names in this report. The methods of soil analysis used are described in McKeague 1978 and are as follows:

Particle-size analysis: Method 2.11, particles less than 2 mm, Pipet method.

Water retention: Method 2.413, water content, volume basis.
(a) 10-60 cm: Method 2.421, water retention using tension table and undisturbed samples.
(b) 102-1020 cm: Method 2.432, pressure plate extraction with undisturbed core samples (cores 7.6 cm thick).
(c) 3059-15 297 cm: Method 2.431, pressure plate extraction with disturbed (2 mm) samples.

Bulk density: Method 2.21, core method.

Saturated hydraulic conductivity: Method 2.51, core method.

pH: Method 3.11, pH in 0.01 M $CaCl_2$; method 3.13, pH in water.

Organic matter: Method 3.613, organic C by wet oxidation (modified Walkley-Black method).

Cation exchange capacity and exchangeable cations: Method 3.31, permanent charge CEC and exchangeable cations by NaCl extraction; method of 3.32, CEC and exchangeable cations by NH_4OAc at pH 7.

Extractable Al, Fe, and Mn: Method 3.51, dithionite-citrate-bicarbonate; method 3.52, acid ammonium oxalate extractable; method 3.53, sodium pyrophosphate extractable Fe and Al.

SOIL PROFILE DESCRIPTIONS, WITH CHEMICAL
AND PHYSICAL ANALYSES

MAP UNIT: AGC1

Location:	UTM* 20T LF18207525	Perviousness:	Rapidly
Slope:	7%	Stoniness:	Moderately
Aspect:	South	Rockiness:	None
Site position:	Crest	Present land use:	Forest - mixed
Drainage:	Rapidly	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
L-H	3-0	Semidecomposed organic matter; abrupt, smooth boundary; 2-6 cm thick.
Ae	0-10	Light brownish gray (10 YR 6/2 m†), light gray (10 YR 7/2 d); loamy sand; very weak, fine, subangular blocky; very friable; abundant, very fine roots; many very fine interstitial pores; clear, wavy boundary; 4-14 cm thick; 10% by volume of dominantly angular gravel.
Bf	10-23	Strong brown (7.5 YR 5/6 m), yellowish brown (10 YR 5/8 d); sandy loam; very weak, fine, subangular blocky; very friable; abundant, very fine roots; many fine interstitial pores; gradual, wavy boundary; 11-16 cm thick; 1[illegible] by volume of dominantly angular gravel.
BC	23-42	Yellowish brown (10 YR 5/6 m), yellowish brown (10 YR 5/8 d); gravelly sandy loam; very weak, medium, subangular blocky; very friable; abundant, very fine roots; many very fine interstitial pores; gradual, wavy boundary; 13-21 cm thick; 20% by volume of dominantly angular gravel.
C1	42-70	Yellowish brown (10 YR 5/6 m), yellowish brown (10 YR 5/8 d); very gravelly loamy sand; single grain; loose; few very fine roots; common, very fine, interstitial pores; 80% by volume of dominantly flagstone.
C2	70-100	Yellowish brown (10 YR 5/6 m), yellowish brown (10 YR 5/8 d); very gravelly loamy sand; single grain; loose; very few roots; 80% by volume of dominantly flagstone.

* Universal Transverse Mercator Grid (Energy, Mines and Resources Canada 1969).
† Refers to the moisture condition of the soil: moist (m), dry (d), or wet (w).

MAP UNIT: AGC1

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
LFH	3-0								
Ae	0-10	4.2	30.9	20.8	15.8	6.4	78	19	3
Bf	10-23	4.7	23.5	18.4	11.9	4.9	64	18	18
BC	23-42	3.8	29.3	23.4	14.2	5.4	76	13	11
C1	42-70	3.7	31.6	22.6	15.7	4.7	78	14	8
C2	70-100	3.4	31.3	27.4	17.2	0.3	80	11	9

Horizon	pH $CaCl_2$	OM† (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable pyrophosphate Fe	Al
LFH	3.5	55.1	8.9	2.1	0.2	2.3		
Ae	3.4	0.7	0.2	0.1	0.5	0.1		
Bf	4.1	1.8	0.1	0.1	2.5	0.1	0.5	0.3
BC	4.5	0.5	0.1	0.0	0.4	0.1	0.1	0.2
C1	4.3	0.3	0.1	0.0	0.6	0.1		
C2	4.3	0.2	0.1	0.0	0.6	0.1		

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: BOT2

Location:	20 T LF 11696991		
Slope:	1.5%	Stoniness:	None
Aspect:	Level	Rockiness:	None
Drainage:	Poorly	Present land use:	Natural grazing
Previousness:	Slowly	Soil classification:	Rego Humic Gleysol

HORIZON	DEPTH (cm)	DESCRIPTION
Of	3-0	Semidecomposed organic matter; abundant, very fine roots; abrupt, smooth boundary; 3-4 cm thick.
Ah	0-12	Olive gray (5 Y 4/2 m), light brownish gray (10 YR 6/2 d); loam; moderate, coarse, subangular blocky; friable; plastic; abundant, very fine roots; common, very fine interstitial pores; clear, wavy boundary; 10-14 cm thick.
Cg	12-25	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loam; strong, coarse, subangular blocky; firm; plastic; plentiful, very fine roots; common, very fine interstitial pores; gradual, wavy boundary; 10-16 cm thick.
IICg	25-40	Grayish brown (2.5 Y 5/2 m), light gray (10 YR 7/1 d); sand; single grain; loose; nonplastic; very few very fine roots; abrupt, smooth boundary; 8-19 cm thick.
IIICg	40-56	Gray (5 Y 5.5/1 m), light gray (10 YR 6.5/1 d); silty clay loam; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; massive; firm; plastic; gradual, wavy boundary; 12-24 cm thick.
IVCg	56-67	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loamy sand; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; single grain; nonsticky, nonplastic; abrupt, smooth boundary; 8-14 cm thick.
VCg	67-81	Dark gray (5 Y 4/1 m), light gray (5 Y 6.5/1 d); silty clay loam; massive; very sticky, very plastic; clear smooth boundary; 11-16 cm thick.
VICg	81-105	Grayish brown (2.5 Y 5/2 ht gray (10 YR 6.5/1 d); loamy sand; single grain; nonsticky, nonplast

MAP UNIT: BOT2

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	BD† (g/cm³)	HC≠ (cm/h)	pH H_2O	pH $CaCl_2$	OM§ (%)
O	3-0													
Ah	0-12	0.3	1.3	9.4	24.1	9.7	44	34	21	1.4		5.2	4.4	8.0
Cg	12-25	0.1	0.6	4.9	15.2	11.8	33	42	25	1.5		5.4	4.5	3.7
IICg	25-40	1.9	3.5	35.2	46.2	5.9	92	4	3			5.5	4.6	0.2
IIICg	40-56	0.1	0.1	2.1	8.4	7.5	18	53	9	1.8	0.0	5.4	4.9	1.1
IVCg	56-67	3.3	6.6	25.3	40.1	7.7	83	12	5			5.6	4.9	0.1
VCg	67-81	0.3	0.5	1.3	5.7	6.6	14	46	40		0.0	4.7	4.5	3.1
VICg	81-105	2.8	5.2	30.3	37.7	7.3	83	12	4	1.7		2.9	2.9	2.7

Horizon	Exchangeable cations (meq/100 g soil) NaCl Ca	NaCl Mg	NaCl Al	NaCl K	NH_4OAc Ca	NH_4OAc Mg	NH_4OAc Na	NH_4OAc K	% Extractable Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
OF	20.0	4.8	1.2	1.6	19.1	3.7	2.3	1.1	0.5	0.2	0.3	0.1
Ah	3.6	0.6	1.8	0.1	3.5	0.5	0.2	0.1	0.2	0.2	0.2	0.2
Cg	4.0	0.5	1.8	0.1	2.7	0.5	0.1	0.3	0.1	0.2	0.1	0.1
IICg	1.0	0.2	0.4	0.0	1.0	0.1	0.2	0.0	0.0	0.1	0.0	0.0
IIICg	10.0	1.9	0.7	0.1	8.8	1.4	0.1	0.1	0.1	0.2	0.0	0.1
IVCg	1.9	0.4	0.1	0.1	1.9	0.3	0.0	0.0	0.1	0.1	0.0	0.0
VCG	11.5	1.9	0.9	0.2	10.0	2.2	0.1	0.1	0.1	0.1	0.1	0.1
VICg	3.7	0.6	3.7	0.0	3.8	1.0	0.0	0.0	0.2	0.1	0.2	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Bulk density.

≠ Saturated hydraulic conductivity.

§ Organic matter.

MAP UNIT: ERB1

Location:	20 T LF 03926166	Perviousness:	Moderately
Slope:	14%	Stoniness:	Moderately
Aspect:	Southwest	Rockiness:	None
Site position:	Lower slope	Present land use:	Cropland
Drainage:	Moderately well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-25	Dark brown (10 YR 3.5/3 m); gravelly loam; moderate, coarse, granular; very friable, abundant, very fine roots; many very fine and fine pores; 30% shales by volume; abrupt, smooth boundary; 23-25 cm thick.
Bm	25-53	Dark yellowish brown or yellowish brown (10 YR 4.5/6 m); gravelly loam; weak to moderate, coarse, granular; friable; abundant, very fine roots; many very fine pores; 40% shales by volume; gradual, wavy boundary; 27-33 cm thick.
BC	53-69	Dark yellowish brown (10 YR 3.5/6 m); very gravelly sandy loam; weak to moderate, fine, subangular blocky; friable; plentiful, fine roots; many very fine pores; 60% shales by volume; gradual, wavy boundary; 0-18 cm thick.
C	69-105	Dark brown or brown (7.5 YR 4/4 m); very gravelly sandy loam; weak to moderate, fine to medium, subangular blocky; friable; very few very fine roots; many very fine pores; 60% shales by volume; clear, wavy boundary; 14-38 cm thick.
R	105+	Shale.

MAP UNIT: ERB1

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	pH H_2O	pH $CaCl_2$	OM† (%)
Ap	0-25	7.9	8.0	8.7	9.8	6.9	41	43	5	6.6	6.1	3.0
Bm	25-53	8.3	7.9	8.9	9.8	6.9	40	40	7	6.3	5.1	2.3
BC	53-69	12.1	14.1	12.3	11.4	7.1	57	31	12	6.0	4.9	1.0
C	69-105	13.6	13.8	13.5	11.8	6.8	60	30	10	6.1	4.9	0.5
R	105+											

Horizon	Exchangeable cations (meq/100 g soil) NaCl Ca	NaCl Mg	NaCl Al	NaCl K	NH_4OAc Ca	NH_4OAc Mg	NH_4OAc Na	NH_4OAc K	% Extractable Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
Ap	3.6	0.1	0.0	0.1	3.9	0.1	0.1	0.1	0.7	0.6	0.4	0.4
Bm	0.3	0.3	0.5	0.1	0.3	0.0	0.0	0.1	1.0	1.2	0.5	0.6
BC	0.7	0.2	0.6	0.1	0.7	0.2	0.1	0.1	1.0	0.7	0.4	0.4
C	4.1	2.7	0.7	0.2	3.4	2.1	0.1	0.1	1.1	0.5	0.2	0.2
R												

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: JEF1

Location:	20 T LF 19406640	Perviousness:	Moderately
Slope:	13%	Stoniness:	Slightly
Aspect:	East	Rockiness:	None
Site position:	Upper slope	Present land use:	Mixed forest
Drainage:	Well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
L-H	2-0	Semidecomposed organic matter; abundant, fine roots; 1-3 cm thick.
Ap	0-16	Brown or dark brown (7.5 YR 4/4 m), dark yellowish brown (10 YR 4/4 d); gravelly loam; weak, medium, subangular blocky; very friable; abundant, fine roots; 20% by volume of dominantly angular gravel; 10-19 cm thick.
Aej	16-20	Light brown (7.5 YR 6/4 m), light yellowish brown (10 YR 6/4 d); gravelly sandy loam; weak, coarse, subangular blocky; very friable; abundant, fine roots; 30% by volume of dominantly angular gravel; 0-9 cm thick.
Bf	20-33	Yellowish red (5 YR 4/7 m), yellowish red (5 YR 4/8 d); gravelly sandy loam; weak, coarse, subangular blocky; very friable; abundant, fine roots; 30% by volume of dominantly angular gravel; 9-16 cm thick.
BC	33-49	Brown or dark brown (7.5 YR 4/4 m), brown (7.5 YR 5/4 d); gravelly sandy loam; moderate, medium, subangular blocky; friable; plentiful, fine roots; 30% by volume of dominantly angular gravel; 12-19 cm thick.
C1	49-65	Dark reddish brown (5 YR 3/4 m); gravelly sandy loam; very weak, fine subangular blocky; friable; few very fine roots; 30% by volume of dominantly angular cobbles; 12-19 cm thick.
C2	65-100	Reddish brown (2.5 YR 4/4 m); gravelly loam; very weak, coarse, subangular blocky; friable; very few fine roots; 30% by volume of dominantly angular cobbles.

MAP UNIT: JEF1

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
LFH	2-0								
Ap	0-16	11.5	12.0	8.3	11.5	7.6	51	38	11
Bf	20-33	13.6	15.0	11.0	12.2	5.4	57	32	11
BC	33-49	14.6	12.8	7.9	10.6	7.3	53	40	7
C1	49-65	12.2	17.2	7.1	10.8	7.3	55	34	11
C2	65-100								

Horizon	pH $CaCl_2$	OM† (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable Pyrophosphate Fe	Al
LFH	3.5	45.9	10.0	2.8	2.3	2.7		
Ap	4.0	5.3	0.2	0.1	3.0	0.2	0.4	0.4
Bf	4.9	3.9	0.1	0.0		0.1	0.3	0.7
BC	4.4	1.1	0.1	0.0	0.6	0.1	0.1	0.3
C1	4.3	0.2	0.5	0.2	2.0	0.1		
C2	4.0	0.1	0.5	0.3	5.1	0.2		

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: KGV2

Location:	20 T LF 1114 7697	Stoniness:	Slightly
Slope:	4%	Rockiness:	None
Aspect:	North	Present land use:	Improved pasture
Site position:	Upper slope	Soil classification:	Gleyed Brunisolic Gray Luvisol
Drainage:	Imperfectly		

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-20	Brown or pinkish gray (7.5 YR 5.5/2 d); silt loam; moderate, coarse, subangular blocky; friable; abundant, fine roots; 10% angular gravel by volume; clear, smooth boundary; 17-20 cm thick.
Bmgj	20-35	Brown (7.5 YR 4.5/4 m), strong brown (7.5 YR 5/6 d); loam; common, medium, distinct, strong brown (7.5 YR 5/7) mottles; moderate, coarse, subangular blocky; common, thin, reddish brown (5 YR 4/3) clay films located on ped faces; 10% angular gravel by volume; gradual, wavy boundary; 11-21 cm thick.
Btgj	35-70	Dark reddish brown (5 YR 3/4 m), pinkish gray or light brown (7.5 YR 6/3 d); silty clay loam; very weak, coarse, subangular blocky; firm; few very fine roots; few thin, reddish brown (5 YR 4/3) clay films located in voids and channels; 10% angular gravel by volume; gradual, wavy boundary.
Cgj1	70-100	Reddish brown (5 YR 4/3 m), brown (7.5 YR 4.5/4 d); silt loam; massive; firm; few thin, reddish brown (5 YR 4/3) clay films located in voids and channels.
Cgj2	100+	Dusky red (2.5 YR 3/2 m), brown (7.5 YR 5/4 d); clay loam; massive; firm.

MAP UNIT: ⟨GV2

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	Water retention† 10	20	60	102	340	1020	3059	15297
Ap	0-20	6.1	6.0	3.5	4.7	6.0	26	49	25	31	30	29	27	26	24	16	13
Bmgj	20-35	5.7	6.9	4.2	5.4	6.1	28	48	24								
Btgj	35-70	2.1	2.9	2.1	3.1	5.0	15	53	32	18	18	18	17	17	16	15	14
Cgj1	70-100	2.3	3.2	2.3	3.6	4.6	16	60	24								
Cgj2	100+	1.4	3.8	3.0	5.7	9.5	23	40	37								

Horizon	BD≠ (g/cm^3)	HC$ (cm/h)	pH $CaCl_2$	OM (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	K	% Extractable Dithionite Fe	Al	Oxalate Fe	Al	Pyrophosphate Fe	Al
Ap	1.4	0.9	5.1	4.5	10.0	1.6	0.2	1.3	0.2	0.8	0.2	0.2	0.1
Bmgj			5.2	0.8	5.5	2.0	0.1	0.3	0.1	0.4	0.1	0.1	0.1
Btgj	1.7	0.1	5.9	0.4	12.2	4.7	0.1	1.6	0.1	0.2	0.1	0.0	0.0
Cgj1			7.0	0.6	10.1	1.8	0.1	1.3	0.1	0.1	0.1	0.0	0.0
Cgj2			7.2	0.1	10.0	1.9	0.1	1.3	0.1	0.1	0.1	0.0	0.0

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Water retention classes are in centimetres of water tension. Values represent the percentage of water by volume.

≠ Bulk density.

$ Saturated hydraulic conductivity.

MAP UNIT: KNC1

Location:	20 T LF 09406830	Perviousness:	Rapidly
Slope:	3%	Stoniness:	None
Aspect:	Southwest	Rockiness:	None
Site position:	Lower slope	Present land use:	Abandoned farmland
Drainage:	Moderately well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-23	Very dark grayish brown or dark brown (10 YR 3/2.5 m), brown (10 YR 4.5/3 d); sandy loam; weak, medium, granular; very friable, nonplastic; abundant, very fine roots; many micro and very fine pores; abrupt, smooth boundary; 22-24 cm thick.
Ae	23-25	Reddish brown or light reddish brown (5 YR 5.5/3 m), pinkish gray (7.5 YR 7/2 d); loamy sand; single grain; loose, nonplastic; abundant very fine roots; many micro and very fine pores; clear, wavy boundary; 1-4 cm thick.
Bfcj	25-35	Yellowish red (5 YR 4.5/6 m), reddish yellow (7.5 YR 6.5/5 m); loamy sand; weak, fine to medium, subangular blocky; very friable, nonplastic; abundant, very fine roots; many very fine pores; clear, wavy boundary; 8-13 cm thick.
BC	35-45	Strong brown (7.5 YR 4.5/6 m), light brown (7.5 YR 6/4 d); sand; single grain; loose, nonplastic; abundant microroots; many very fine pores; gradual, wavy boundary; 8-17 cm thick.
C1	45-70	Strong brown (7.5 YR 5/6 m), brown or light brown (7.5 YR 5.5/4 d); sand; single grain; loose, nonplastic; abundant microroots; many very fine pores.
C2	70-95	Strong brown (7.5 YR 5/6 m), brown or light brown (7.5 YR 5.5/4 d); sand; single grain; loose, nonplastic; abundant microroots; many very fine pores.
C3	95+	Strong brown (7.5 YR 5/6 m), brown or light brown (7.5 YR 5.5/4 d); sand; single grain; loose, nonplastic; abundant microroots; many very fine pores.

MAP UNIT: KNC1

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	pH H_2O	pH $CaCl_2$	OM† (%)
Ap	0-23	0.8	5.7	37.6	31.7	4.8	84	9	11	4.9	4.2	3.2
Ae	23-25	0.9	5.7	35.7	31.4	5.4	79	18	4	5.3	4.3	0.2
Bfcj	25-35	1.8	7.3	42.6	30.1	4.1	86	8	5	5.5	4.8	1.5
BC	35-45	1.1	5.6	44.0	38.6	2.8	92	4	4	5.8	4.9	0.4
C1	45-70	0.2	2.8	45.2	45.8	1.8	96	3	2	5.9	5.2	0.1
C2	70-95	0.4	5.9	50.4	37.3	0.8	95	4	1	5.8	5.1	0.0
C3	95	0.3	3.4	44.0	45.3	2.4	95	3	1	5.8	4.8	0.0

Horizon	Exchangeable cations (meq/100 g soil) NaCl Ca	NaCl Mg	NaCl Al	NaCl K	NH_4OAc Ca	NH_4OAc Mg	NH_4OAc Na	NH_4OAc K	% Extractable Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
Ap	0.4	0.0	1.3	0.1	0.4	0.0	0.0	0.1	0.3	0.3	0.1	0.3
Ae	0.5	0.0	1.4	0.0	0.5	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Bfcj	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.1	0.5	1.6	0.1	0.5
BC	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.1	0.3	0.6	0.1	0.2
C1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.0	0.2
C2	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.1
C3	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: LMD1

Location:	20 T LF 18585095	Perviousness:	Moderately
Slope:	12%	Stoniness:	Moderately
Aspect:	East	Rockiness:	None
Site position:	Middle slope	Present land use:	Unproductive woodland
Drainage:	Well	Soil classification:	Orthic Dystric Brunisol

HORIZON	DEPTH (cm)	DESCRIPTION
LFH	4-0	Semidecomposed organic matter; abrupt, clear boundary; 3-4 cm thick.
Ah	0-20	Dark brown (7.5 YR 3/3 m); gravelly loam; strong, fine to medium, granular; very friable; abundant, medium roots; many fine pores; 40% angular gravel by volume; clear, smooth boundary; 16-26 cm thick.
Bfj	20-29	Dark brown (7.5 YR 3.5/4 m); gravelly silt loam; very weak, fine, subangular blocky; very friable, abundant, medium roots; many fine pores; 40% angular gravel by volume; diffuse broken boundary; 0-17 cm thick.
AB	29-41	Dark brown (7.5 YR 3/3 m); gravelly sandy loam; strong, fine to medium, granular; very friable; abundant, medium roots; many fine pores; 40% angular gravel by volume; gradual, broken boundary; 10-22 cm thick.
BC	41-50	Brown or dark brown (7.5 YR 4/4 m); very gravelly sandy loam; few fine, faint, strong brown (7.5 YR 4/5) mottles; weak, coarse platy; friable; very few very fine roots; few very fine pores; 60% stones by volume; clear, wavy boundary; 6-17 cm thick.
C1	50-85	Brown or dark brown (7.5 YR 4/4 m); very gravelly sandy loam; very weak, medium to coarse platy; friable, nonplastic; very few very fine roots; very few very fine pores; 60% stones by volume.
C2	85-100	Brown or dark brown (7.5 YR 4/4 m); very gravelly sandy loam; very weak, medium to coarse platy; friable, nonplastic; very few very fine roots; very few very fine pores; 60% stones by volume.

MAP UNIT: LMD1

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction							
		VCS	CS	S	FS	VFS	TS	SI	C
Ah	0-20	14.7	10.5	5.8	8.5	9.1	49	37	14
Bfj	20-29	10.6	7.6	4.6	6.4	6.1	35	56	9
AB	29-41	17.2	14.4	8.7	10.1	8.1	59	28	13
BC	41-50	16.0	12.3	7.0	9.1	9.0	53	35	12
C1	50-85	21.0	16.3	7.4	8.1	6.4	59	25	16
C2	85-100	16.2	14.2	8.0	9.7	7.9	56	27	17

Horizon	pH		OM† (%)	Exchangeable cations NaCl (meq/100 g soil)				% Extractable					
								Dithionite		Oxalate		Pyrophosphate	
	H_2O	$CaCl_2$		Ca	Mg	Al	K	Fe	Al	Fe	Al	Fe	Al
Ah	4.9	4.1	9.0	0.2	0.1	1.9	0.1	1.8	1.1	1.2	1.1	1.0	0.9
Bfj	5.1	4.4	6.3	0.1	0.0	1.0	0.1	1.6	1.3	1.0	1.5	0.8	1.0
AB	5.1	4.3	8.8	0.2	0.0	1.1	0.1	1.6	1.8	1.3	2.0	1.0	1.8
BC	5.3	4.4	3.0	0.1	0.0	0.7	0.1	0.9	0.8	0.4	1.0	0.3	0.6
C1	5.0	4.3	0.7	0.1	0.0	0.7	0.1	1.0	0.5	0.1	0.6	0.0	0.4
C2	4.9	4.3	0.8	0.1	0.0	0.9	0.1	0.9	0.4	0.2	0.6	0.1	0.4

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: MUP1

Location:	20 T LF 11556886	Stoniness:	Slightly
Slope:	2.5%	Rockiness:	None
Aspect:	North	Present land use:	Productive woodland
Site position:	Upper	Soil classification:	Podzolic Gray Luvisol
Drainage:	Moderately well		

HORIZON	DEPTH (cm)	DESCRIPTION
LF	1-0	Semidecomposed organic matter; abrupt, smooth boundary; 1-2 cm thick.
Ahe	0-14	Dark brown (7.5 YR 3.5/4 m), very pale brown (10 YR 7/3 d) loam; moderate, coarse, granular; friable, plastic; abundant, fine roots; many fine, random pores; 10% by volume of angular gravel; clear, wavy boundary; 8-15 cm thick.
Ae	14-16	Reddish brown (5 YR 5/3 m), pinkish gray (7.5 YR 7/2 d); loam; moderate, fine, subangular blocky; friable, plastic; abundant, fine roots; many fine, random pores; 10% by volume of angular gravel; diffuse, broken boundary; 0-8 cm thick.
Bf	16-26	Strong brown (7.5 YR 4/6 m), brown (7.5 YR 5/4 d); clay loam; moderate, fine to medium, granular; friable; very plastic; plentiful, fine roots; many fine pores; 10% by volume of angular gravel; clear, wavy boundary; 8-11 cm thick.
IIBt1	26-51	Reddish brown (5 YR 4/4 d); silty clay loam; strong, coarse, subangular blocky; very firm, very plastic; few fine roots; very few fine pores; continuous, thin, reddish brown (2.5 YR 4.5/4) clay films located on ped faces; clear, wavy boundary; 22-27 cm thick.
IIBt2	51-95	Reddish brown (5 YR 4/4 d); silty clay; weak to moderate, medium prismatic; very firm, very plastic; very few very fine roots; very few very fine pores; continuous, thin, reddish brown (2.5 YR 4.5/4) clay films located on ped faces; clear, wavy boundary; 42-51 cm thick.
IICg1	95-120	Reddish brown (5 YR 4/3 d); clay loam; few medium, distinct, strong brown (7.5 YR 4.5/6) mottles; strong, very coarse, subangular blocky; very firm, very plastic; very few, very fine roots; very few very fine pores; many thin, reddish brown (2.5 YR 4.5/4) clay films located on ped faces.
IICg2	120-145	Reddish brown (5 YR 4/3 d); loam clay; few medium, distinct, strong brown (7.5 YR 4.5/6) mottles; strong, very coarse, subangular blocky; very firm, very plastic; very few very fine roots; very few very fine pores; many, thin reddish brown (2.5 YR 4.5/4) clay films located on ped faces.

MAP UNIT: MUP1

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	BD† (g/cm³)	HC≠ (cm/h)	pH H_2O	pH $CaCl_2$
LF	1-0												
Ahe	0-14	10.5	11.5	8.6	8.4	4.4	41	41	18			5.1	4.4
Bf	16-26	4.8	7.1	6.1	5.5	2.6	25	38	36			5.4	4.6
IIBt1	26-51	1.3	1.6	1.6	1.8	1.0	7	57	36	2.1		5.4	4.2
IIBt2	51-95	0.7	0.7	0.7	0.8	0.5	3	52	45	2.1		5.4	4.1
IICg1	95-120	4.0	4.4	5.7	7.8	5.3	28	42	30	1.9	0.1	5.8	4.8
IICg2	120-145									2.2			

Horizon	OM§ (%)	Exchangeable cations (meq/100 g soil) NaCl Ca	Mg	Al	K	NH_4OAc Ca	Mg	K	Na	% Extractable Oxalate Fe	Al	Pyrophosphate Fe	Al
LF		17.4	3.0	0.3	1.1	20.4	2.5	1.0	2.7	0.3	0.2	0.0	0.1
Ahe	4.6	3.1	0.9	2.2	0.2	2.5	0.8	0.1	0.1	0.7	0.2	0.3	0.2
Bf	1.4	1.4	0.5	3.1	0.2	1.3	0.4	0.1	0.1	1.0	0.5	0.6	0.3
IIBt1	0.2	2.3	1.9	6.5	0.2	2.3	1.4	0.2	0.1	0.5	0.2	0.2	0.2
IIBt2	0.1	4.0	3.7	5.9	0.2	3.8	3.0	0.2	0.2	0.5	0.2	0.1	0.1
IICg1	0.0	6.1	6.3	0.8	0.2	6.5	5.0	0.1	0.2	0.3	0.2	0.1	0.1
IICg2		1.0	0.3	0.3	0.2	1.0	0.1	0.1	0.1	0.9	1.4	0.3	0.6

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Bulk density.

≠ Saturated hydraulic conductivity.

§ Organic matter.

MAP UNIT: PAB5

Location:	20 T LF 09945076	Perviousness:	Slowly
Slope:	4%	Stoniness:	Slightly
Aspect:	West	Rockiness:	None
Site position:	Middle slope	Present land use:	Unproductive woodland
Drainage:	Poorly	Soil classification:	Orthic Gleysol

HORIZON	DEPTH (cm)	DESCRIPTION
Aheg	0-15	Brown (7.5 YR 4.5/4 m); loam; few fine, faint, strong brown (7.5 YR 5/6) mottles; moderate, coarse, subangular blocky; friable; abundant, very fine roots; many fine pores; 10% angular gravel by volume; clear, wavy boundary; 14-16 cm thick.
Bg	15-33	Strong brown (7.5 YR 4/6 m); loam; few fine, faint, strong brown (7.5 YR 5/6) mottles; weak to moderate, coarse, subangular blocky; very friable; plentiful very fine roots; many fine pores; 20% angular gravel by volume; clear, wavy boundary; 13-23 cm thick.
BCg	33-51	Reddish brown or dark reddish brown (5 YR 3.5/4 m); gravelly loam; common, coarse, distinct strong brown (7.5 YR 5/6) mottles; very weak, coarse platy; firm; few very fine roots; common, very fine pores; 30% angular gravel by volume; gradual wavy boundary; 12-19 cm thick.
Cg1	51-75	Reddish brown or dark reddish brown (5 YR 3.5/4 m); gravelly clay loam; massive; very firm; very few very fine pores; 30% angular gravel by volume.
Cg2	75+	Reddish brown or dark reddish brown (5 YR 3.5/4 m); gravelly clay loam; massive; very firm; very few very fine pores; 30% angular gravel by volume.

MAP UNIT: PAB5

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
Aheg	0-15	5.8	4.8	3.6	5.2	6.9	26	48	26
Bg	15-33	5.1	5.5	4.8	8.2	10.3	34	47	19
BCg	33-51	6.2	6.3	5.1	8.6	9.6	36	42	23
Cg1	51-75	9.7	7.3	3.7	8.0	8.9	38	34	29
Cg2	75+	7.0	7.4	5.2	8.4	8.7	37	32	32

Horizon	pH H_2O	pH $CaCl_2$	OM† (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable Dithionite Fe	Dithionite Al	Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
Aheg	4.6	3.6	2.4	0.9	0.3	8.0	0.1	0.8	0.2	0.3	0.3	0.2	0.2
Bg	4.8	4.0	1.1	0.2	0.0	2.6	0.1	1.0	0.3	0.5	0.3	0.3	0.3
BCg	4.8	3.8	0.2	1.3	0.5	4.4	0.1	1.2	0.1	0.3	0.2	0.0	0.1
Cg1	4.9	3.8	0.2	2.5	1.2	3.1	0.1	1.3	0.1	0.2	0.2	0.0	0.1
Cg2	5.1	4.2	0.2	4.7	2.0	1.3	0.2	1.3	0.1	0.2	0.1	0.0	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: PAB6

Location:	20 T LF 08965118	Perviousness:	Moderately
Slope:	10%	Stoniness:	Slightly
Aspect:	Northwest	Rockiness:	None
Site position:	Lower slope	Present land use:	Productive woodland
Drainage:	Moderately well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
Ah	0-5	Dark brown or brown (7.5 YR 4/4 m); gravelly silt loam; weak, fine to medium, subangular blocky; very friable; abundant, fine roots; many fine pores; 30% angular gravel by volume; clear, wavy boundary; 3-6 cm thick.
Bf1	5-21	Dark reddish brown (5 YR 3/4 m); gravelly silt loam; strong, coarse; granular; very friable; abundant, fine roots, many fine pores; 30% angular gravel by volume; clear, wavy boundary; 14-17 cm thick.
Bf2	21-42	Dark brown or brown (7.5 YR 4/4 m); gravelly loam; weak, coarse, subangular blocky; friable; plentiful, fine roots; common, fine pores; 30% angular gravel by volume; clear, wavy boundary; 20-24 cm thick.
BC	42-71	Reddish brown (5 YR 4/4 m); gravelly loam; weak, fine to medium, angular blocky; friable; few fine roots; few fine pores; 30% angular gravel by volume; clear, wavy boundary; 26-32 cm thick.
C	71-100	Dark reddish brown (5 YR 3/4 m); gravelly clay loam; massive; firm, plastic; very few fine roots; very few very fine pores; 30% angular gravel by volume; clear, wavy boundary.
Cgj	100+	Dark reddish brown (5 YR 3/4 m); gravelly loam; massive; firm, plastic; very few very fine roots; very few fine pores; 30% angular gravel by volume.

MAP UNIT: PAB6

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction							
		VCS	CS	S	FS	VFS	TS	SI	C
Bf1	5-21	7.0	5.6	2.7	5.0	7.1	28	58	15
Bf2	21-42	12.2	6.3	3.6	6.8	8.4	37	49	14
BC	42-71	8.7	6.1	4.2	7.6	8.4	35	43	22
C	71-100	5.2	4.8	3.6	6.3	0.0	20	50	30
Cgj	100	8.0	5.2	3.3	6.4	7.0	30	42	28

Horizon	pH		OM† (%)	Exchangeable cations NaCl (meq/100 g soil)				% Extractable					
								Dithionite		Oxalate		Pyrophosphate	
	H_2O	$CaCl_2$		Ca	Mg	Al	K	Fe	Al	Fe	Al	Fe	Al
Bf1	4.9	4.1	8.8	0.1	0.0	1.9	0.1	2.0	1.7	1.4	1.7	1.1	1.3
Bf2	5.0	4.3	4.7	0.1	0.0	0.8	0.1	1.3	1.3	0.7	1.3	0.5	1.0
C	5.1	4.1	0.3	0.8	0.7	1.6	0.1	1.0	0.2	0.2	0.3	0.1	0.2
Cgj	5.1	4.3	0.0	3.9	3.0	0.6	0.2	1.4	0.1	0.3	0.2	0.0	0.1
C2	5.6	4.9	0.0	4.3	3.4		0.2	1.3	0.1	0.3	0.1	0.0	0.0

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: PEV2

Location:	20 T LF 03005123	Perviousness:	Moderately
Slope:	14%	Stoniness:	Slightly
Aspect:	West	Rockiness:	None
Site position:	Middle slope	Present land use:	Unproductive woodland
Drainage:	Well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
LFH	1-0	Semidecomposed organic matter; clear, wavy boundary; 0-1 cm thick.
Ah	0-9	Dark reddish brown (5 YR 3/3 m); gravelly loam; weak, medium to coarse, subangular blocky; very friable; abundant, fine roots; many fine pores; 40% angular gravel by volume; gradual, irregular boundary; 7-10 cm thick.
Bf	9-32	Reddish brown (5 YR 4/4 m); very gravelly loam; weak to moderate, medium to coarse, subangular blocky; friable; abundant, fine roots; many fine pores; 50% angular gravel by volume; gradual, broken boundary; 21-27 cm thick.
C	32-34	Reddish brown (5 YR 4/3 m); very gravelly loam; friable; plentiful, fine roots; many fine pores; 50% angular gravel by volume; gradual, broken boundary.
R	34+	Consolidated conglomerate bedrock.

MAP UNIT: PEV2

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction							
		VCS	CS	S	FS	VFS	TS	SI	C
Ah	0-9	10.6	8.3	3.8	5.9	10.5	39	47	14
Bf	9-32	13.2	7.8	2.9	3.9	8.3	36	49	15

Horizon	pH		OM† (%)	Exchangeable cations NaCl (meq/100 g soil)				% Extractable Dithionite		Oxalate		Pyrophosphate	
	H_2O	$CaCl_2$		Ca	Mg	Al	K	Fe	Al	Fe	Al	Fe	Al
Ah	5.0	4.2	11.8	0.2	0.1	1.4	0.1	1.9	1.2	1.2	1.6	0.8	1.1
Bf	5.0	4.4	9.3	0.1	0.0	0.8	0.1	2.2	1.5	1.5	2.0	1.0	1.3

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: PEV3

Location:	20 T LF 20456455	Perviousness:	Moderately
Slope:	7%	Stoniness:	Slightly
Aspect:	West	Rockiness:	None
Site position:	Crest	Present land use:	Abandoned farm land
Drainage:	Well	Soil classification:	Orthic Perro-Humic Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
L-H	7-0	Semidecomposed organic matter; abrupt, wavy boundary; 6-8 cm thick.
Ap	0-15	Dark brown (10 YR 3/3 m); gravelly sandy loam; weak, medium, subangular blocky; very friable; abundant, fine roots; 30% by volume of dominantly gravel; clear, wavy boundary; 12-21 cm thick.
Bhf	15-30	Very dusky red (2.5 YR 2.5/2 m); gravelly loamy sand; moderate, fine to medium, subangular blocky; very friable; abundant, very fine roots; 30% by volume of dominantly gravel; clear, wavy boundary; 10-25 cm thick.
Bfj	30-38	Yellowish red to strong brown (6.5 YR 4/6 m); very gravelly loamy sand; very weak, fine, subangular blocky; very friable; plentiful, very fine roots; 60% by volume of dominantly gravel; gradual, wavy boundary; 3-10 cm thick.
BC	38-50	Reddish brown (2.5 YR 4/4 m); very gravelly sand; single grain; very friable; few very fine roots; 60% by volume of dominantly gravel; gradual, wavy boundary; 7-14 cm thick.
Cgj1	50-65	Reddish brown (2.5 YR 4.5/4 m); very gravelly loamy sand; single grain; friable; very few very fine roots; 70% by volume of dominantly gravel; abrupt, wavy boundary.
Cgj2	65-70	Very gravelly loam; many coarse, prominent, yellowish red (5 YR 4/8) mottles; massive; firm; 70% by volume of dominantly gravel.
R	70+	Consolidated conglomerate bedrock.

MAP UNIT: PEV3

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
LFH	7-0								
Ap	0-15	17.6	12.9	6.3	8.9	6.7	53	38	9
Bhf	15-30	36.3	27.7	7.6	4.6	3.0	79	15	6
Bfj	30-38	30.5	25.2	14.3	11.8	3.3	85	13	2
BC	38-50	19.8	23.3	18.4	24.4	4.5	90	8	2
Cgj1	50-65	18.5	16.2	9.8	16.8	12.2	73	24	3
Cgj2	65-70	14.8	12.1	6.6	7.5	4.4	45	41	13

Horizon	pH $CaCl_2$	OM† (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable Pyrophosphate Fe	Al
LFH	3.3	100.0	12.0	2.8	3.6	2.7		
Ap	3.9	5.8	0.2	0.1	3.9	0.2	0.7	0.6
Bhf	4.4	12.4	0.2	0.1	0.3	0.1	1.5	2.3
Bfj	4.7	3.5	0.1	0.0	0.0	0.1	0.4	0.9
BC	4.7	1.7	0.1	0.0	0.1	0.1	0.2	0.5
Cgj1	4.4	0.9	0.1	0.0	0.6	0.1		
Cgj2	4.1	0.5	0.3	0.3	5.1	0.2		

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: PEV3

Location:	20 T LF 04265533	Perviousness:	Moderately
Slope:	12%	Stoniness:	Slightly
Aspect:	West	Rockiness:	None
Site position:	Upper slope	Present land use:	Productive woodland
Drainage:	Well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
LFH	4-0	Semidecomposed organic matter; abundant, very fine roots; many fine pores; abrupt, wavy boundary; 3-6 cm thick.
Ah	0-19	Dark brown (10 YR 3/3 m); silt loam; moderate, fine subangular blocky; very friable; abundant, fine roots; many fine pores, 10% angular gravel by volume; clear, wavy boundary; 13-25 cm thick.
Ae	19-33	Reddish brown (5 YR 5/3 m); gravelly loam; weak, medium to coarse, platy; friable; plentiful very fine roots; many fine pores; 30% angular gravel by volume; gradual, broken boundary; 6-23 cm thick.
Bf1	33-46	Strong brown (7.5 YR 5/8 m); silt loam; strong, fine to medium, granular; very friable; abundant, fine roots; many fine pores; 20% angular gravel by volume; gradual, broken boundary; 0-16 cm thick.
Bf2	46-59	Dark brown (7.5 YR 3/3 m); gravelly loam; very weak, coarse, subangular blocky; very friable; abundant, fine roots; many fine pores; 30% angular gravel by volume; gradual, irregular, boundary; 10-21 cm thick.
BC	59-66	Dark brown (7.5 YR 3.5/4 m); very gravelly loam; friable; few very fine roots; many fine pores; 50% angular gravel by volume; gradual, irregular boundary; 4-7 cm thick.
C	66-76	Dark brown (7.5 YR 3.5/4 m); very gravelly loam; very weak, medium platy; friable; very few very fine roots; common, fine pores; 50% angular gravel by volume; abrupt, irregular boundary; 12-22 cm thick.
R	76+	Consolidated conglomerate bedrock.

MAP UNIT: PEV3

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction							
		VCS	CS	S	FS	VFS	TS	SI	C
LFH	4-0								
Ah	0-19	4.1	4.3	3.2	7.8	13.3	33	51	17
Ae	19-33	3.5	4.0	4.3	11.3	14.9	38	51	11
Bf1	33-46	5.4	5.0	4.0	8.6	13.9	37	51	13
Bf2	46-59	6.8	7.6	6.5	11.1	7.7	40	50	10
C	66-76	7.5	9.3	6.5	13.6	15.1	52	39	9

Horizon	pH		OM† (%)	Exchangeable cations NaCl (meq/100 g soil)				% Extractable					
								Dithionite		Oxalate		Pyrophosphate	
	H_2O	$CaCl_2$		Ca	Mg	Al	K	Fe	Al	Fe	Al	Fe	A
LFH		3.7	22.7	5.6	1.1	5.3	1.2	1.3	0.4	0.7	0.5	0.6	0.5
Ah	4.7	3.7	8.6	0.4	0.2	3.8	0.2	2.0	0.4	1.0	0.6	0.9	0.5
Ae	4.8	3.7	1.3	0.5	0.0	3.9	0.1	0.9	0.1	0.2	0.2	0.2	0.1
Bf1	5.1	4.1	8.9	0.4	0.0	1.5	0.1	3.3	1.7	2.4	1.9	1.6	1.3
Bf2	5.3	4.3	3.9	0.2	0.0	1.2	0.1	1.4	0.4	0.8	1.2	0.6	1.0
C	5.4	4.3	1.5	0.2	0.0	0.6	0.1	1.6	0.4	0.4	0.7	0.2	0.4

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: PRY4

Location:	20 T LF 15506390	Perviousness:	Moderately
Slope:	10%	Stoniness:	Slightly
Aspect:	Northwest	Rockiness:	None
Site position:	Upper slope	Present land use:	Improved pasture
Drainage:	Well	Soil classification:	Orthic Sombric Brunisol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-22	Dark yellowish brown (10 YR 3/4 m) yellowish brown (10 YR 5/4 d); sandy loam; weak to moderate, fine, granular; friable; slightly plastic; abundant, very fine roots; many very fine pores; 10% angular gravel by volume; abrupt, smooth boundary; 20-25 cm thick.
Bm1	22-40	Dark yellowish brown (10 YR 3.5/6 m), light brown or brown (10 YR 5.5/4 d); sandy loam; weak, fine, granular; friable, nonplastic; abundant, very fine roots; many very fine pores; 10% angular gravel by volume; clear, wavy, boundary; 12-24 cm thick.
Bm2	40-57	Dark brown or brown (7.5 YR 4/4 m), yellowish brown or light yellowish brown (10 YR 5.5/4 d); sandy loam; very weak, very fine, subangular blocky; very friable, nonplastic; few very fine roots; common, very fine pores; 20% angular gravel by volume; clear, wavy boundary; 14-20 cm thick.
C	57-75	Dark brown (7.5 YR 3.5/4 m), brown or light brown (7.5 YR 5.5/4 d); gravelly loam; single grain; loose; nonplastic; very few very fine roots; common, very fine pores; 30% angular gravel by volume; gradual, irregular boundary; 8-24 cm thick.
IIC1	75-110	Dark reddish brown or reddish brown (5 YR 3.5/4 m), reddish brown (5 YR 4/4 d); gravelly loam; strong, coarse, subangular blocky; firm, nonplastic; very few pores; few very thin clay films located on ped faces; 30% angular gravel by volume.
IIC2	110-130	Gravelly sandy loam; firm, nonplastic; very few pores; few very thin clay films located on ped faces; 30% angular gravel by volume.

MAP UNIT: PRY4

Particle-size analysis*

Horizon	Depth (cm)	Sand fraction							
		VCS	CS	S	FS	VFS	TS	SI	C
Ap	0-22	8.0	9.6	12.6	12.1	9.6	51	41	8
Bm1	22-40	10.9	12.2	13.4	12.4	5.4	58	35	7
Bm2	40-57	9.7	11.8	16.2	15.5	11.3	65	31	4
C	57-75	12.0	12.6	14.5	13.9	5.9	63	32	5
IIC1	75-110	9.3	8.2	11.0	11.2	11.8	52	38	10
IIC2	110-130	6.9	8.0	11.5	13.6	7.2	54	40	6

Horizon	BD† (g/cm^3)	pH		OM# (%)	Exchangeable cations NaCl (meq/100 g soil)				% Extractable			
		H_2O	$CaCl_2$		Ca	Mg	Al	K	Dithionite Fe	Dithionite Al	Pyrophosphate Fe	Pyrophosphate Al
Ap		5.1	4.6	4.8	1.1	0.2	0.8	0.3	0.6	0.6	0.3	0.4
Bm1		5.5	4.9	1.8	0.3	0.2	0.4	0.1	0.3	0.5	0.2	0.3
Bm2		5.6	4.8	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.0	0.2
C		5.7	4.8	0.1	0.2	0.1	0.4	0.1	0.1	0.2	0.0	0.1
IIC1	2.1	5.5	4.5	0.0	1.1	0.4	1.2	0.1	0.1	0.1	0.0	0.1
IIC2	2.1	5.5	4.4	0.0	0.7	0.4	1.3	0.1	0.0	0.1	0.0	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Bulk density.

Organic matter.

MAP UNIT: SAP2

Location:	20 T KF 98455793	Perviousness:	Slowly
Slope:	14%	Stoniness:	Very
Aspect:	Northeast	Rockiness:	None
Site position:	Lower slope	Present land use:	Productive woodland
Drainage:	Imperfectly	Soil classification:	Gleyed Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
LPH	2-0	Semidecomposed organic material; abundant, very fine, roots; many fine pores; abrupt, wavy boundary; 1-3 cm thick.
Ah	0-16	Very dark grayish brown (10 YR 3/2 m); gravelly loam; strong, very fine to fine, subangular blocky; very friable; abundant, very fine roots; many fine pores; 30% angular gravel by volume; gradual, irregular boundary; 10-18 cm thick.
Bf1	16-21	Dark yellowish brown (10 YR 3.5/6 m); gravelly silt loam; moderate, medium, subangular blocky; very friable; abundant, fine roots; many fine pores; 20% angular gravel by volume; clear, broken boundary; 0-10 cm thick.
Aej	21-26	Light brownish gray or light gray (10 YR 6.5/2 m); loam; weak, fine to medium, platy; very friable; abundant, fine roots; many fine pores; 10% angular gravel by volume; clear, broken, boundary; 0-7 cm thick.
Bf2	26-49	Dark yellowish brown or yellowish brown (10 YR 4.5/4 m); gravelly loam; weak, fine to medium, subangular blocky; very friable; abundant, medium roots; many fine pores; 20% angular gravel by volume; gradual, irregular boundary; 15-31 cm thick.
BCg	49-61	Brown (10 YR 4.5/3 m); gravelly loam; common, medium, prominent, strong brown (7.5 YR 5/8) mottles; very weak, coarse, platy; friable; plentiful, medium roots; common, fine pores; 20% angular gravel by volume; gradual, irregular boundary; 11-21 cm thick.
Cg1	61-90	Brown (10 YR 4.5/3 m); gravelly silt loam; common, coarse, prominent, strong brown (7.5 YR 5/8) mottles; very weak, medium to coarse, angular blocky; firm, slightly plastic; very few very fine pores; few, very thin, brown (10 YR 5/3) clay films located in voids or channels; 20% angular gravel by volume.
Cg2	90+	Brown (10 YR 5/3 m); gravelly silty clay loam; common, coarse, prominent; strong brown (7.5 YR 5/8 m) mottles; very weak, medium to coarse, angular blocky; firm, plastic; very few very fine pores; few, very thin, brown (10 YR 5/3 m) clay films located in voids or channels; 20% angular gravel by volume.

MAP UNIT: SAP2

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
Ah	0-16	4.8	3.0	3.0	12.2	23.2	46	37	17
Bf1	16-21	2.0	2.6	2.8	6.0	7.4	21	54	25
Bf2	26-49	2.1	2.9	3.1	5.5	11.4	25	47	28
BCg	49-61	2.2	2.8	3.0	8.4	18.4	35	46	19
Cg1	61-90	3.6	2.9	2.7	5.7	5.5	20	57	23
Cg2	90+	1.2	1.8	1.3	2.4	9.1	16	56	29

Horizon	pH H_2O	pH $CaCl_2$	OM† (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable Dithionite Fe	Dithionite Al	Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
Ah	5.0	4.0	7.0	5.1	1.1	3.2	0.2	0.5	0.1	0.2	0.1	0.2	0.1
Bf1	5.0	4.1	3.0	3.2	0.9	3.9	0.1	1.7	0.3	0.9	0.3	1.2	0.3
Bf2	5.0	4.2	2.8	3.2	1.2	4.1	0.1	1.6	0.3	1.1	0.4	1.3	0.4
BCg	5.4	4.3	1.1	2.3	0.9	2.3	0.1	0.8	0.2	0.4	0.2	0.3	0.1
Cg1	5.5	4.3	0.5	3.1	1.6	1.3	0.2	0.9	0.1	0.4	0.1	0.1	0.1
Cg2	5.7	4.8	0.3	7.0	3.0	0.0	0.2	1.0	0.1	0.4	0.1	0.0	0.0

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Organic matter.

MAP UNIT: SAP3

Location:	20 T KF 95255877	Perviousness:	Moderately
Slope:	4.5%	Stoniness:	Slightly
Aspect:	Southeast	Rockiness:	None
Site position:	Upper slope	Present land use:	Improved pasture
Drainage:	Poorly	Soil classification:	Orthic Humic Gleysol

HORIZON	DEPTH (cm)	DESCRIPTION
Apg	0-21	Dark grayish brown (2.5 Y 4/2 m), grayish brown (2.5 Y 5/2 d); loam; many coarse, prominent yellowish red (5 YR 5/3) mottles; moderate, fine, subangular blocky; friable; abundant, very fine roots; many very fine interstitial pores; few fine, spherical, yellowish red (5 YR 5/6) iron-manganese concretions located around root channels; 10% by volume of dominantly channers; abrupt, smooth boundary; 20-22 cm thick.
Bg	21-31	Grayish brown (2.5 Y 5/2 m), light olive brown (2.5 Y 5/4 d); gravelly loam; common, medium, distinct, yellowish red (5 YR 5/8) mottles; weak, medium, subangular blocky; friable; plentiful, very fine roots; common, very fine interstitial pores; 20% by volume of dominantly channers; clear, wavy boundary; 8-17 cm thick.
BC	31-53	Brown (10 YR 5/3 m), light brownish gray (2.5 Y 6/2 d); gravelly loam; many coarse, prominent, yellowish red (5 YR 5/8) mottles; moderate, medium, subangular blocky; friable; few thin clay films located in voids or channels; very few very fine roots; common, very fine interstitial pores; 30% by volume of dominantly channers; gradual, irregular boundary; 19-26 cm thick.
Cg1	53-75	Light olive brown or grayish brown (2.5 Y 5/3 m), light gray (2.5 Y 7/2 d); gravelly loam; many coarse, distinct, yellowish red (5 YR 5/8) mottles; massive; very firm; very few very fine interstitial pores; 20% by volume of dominantly channers.
Cg2	75-100	Reddish brown (5 YR 5/3 m); gravelly loam; massive; very firm; common, thin clay films in voids or channels only; very few very fine interstitial pores; 20% by volume of dominantly channers.

MAP UNIT: SAP3

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	Water retention† 10	20	60	102	340	1020	3059	15297
Apg	0-21	3.2	6.2	4.7	7.8	6.5	28	47	25	43	41	39	37	35	32	20	13
Bg	21-31	4.8	6.4	5.5	10.0	8.0	34	50	16	38	38	35	33	31	28	13	8
BC	31-53	4.0	5.5	5.3	9.2	7.4	31	48	21	32	31	28	24	23	22	12	7
Cg1	53-75	4.5	5.8	5.2	8.1	6.0	30	46	24	30	29	27	25	24	24	12	8
Cg2	75-100	4.6	6.2	5.6	9.5	7.5	33	48	19							13	8

Horizon	BD# (g/cm^3)	HC$ (cm/h)	pH $CaCl_2$	OM¡ (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K
Apg	1.5	3.8	4.4	5.9	4.4	2.1	0.5	0.2
Bg	1.4	0.6	4.2	1.4	0.7	0.3	1.1	0.1
BC	1.6	0.2	4.1	0.5	1.2	0.6	2.1	0.1
Cg1	1.8	0.1	4.3	0.4	4.0	1.7	0.7	0.2
Cg2			5.9	0.4	6.8	2.3	0.0	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Water retention classes are in centimetres of water tension. Values represent the percentage of water by volume.

Bulk density.

$ Saturated hydraulic conductivity.

¡ Organic matter.

MAP UNIT: SSX1

Location:	20 T LF 04386768	Stoniness:	None
Slope:	1%	Rockiness:	None
Aspect:	Level	Present land use:	Cropland
Drainage:	Moderately well	Soil classification:	Orthic Sombric Brunisol
Perviousness:	Moderately		

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-29	Dark reddish brown (5 YR 3/3.5 m); silt loam; moderate, fine, subangular blocky; very friable, plastic; abundant, very fine roots; many fine pores; abrupt, smooth boundary; 23-29 cm thick.
Bm	29-41	Dark brown (7.5 YR 3.5/4 m); silt loam; weak, medium, subangular blocky; friable, plastic; abundant, very fine roots; common, very fine pores; clear, broken boundary; 13-17 cm thick.
BC	41-52	Dark brown (7.5 YR 3.5/4 m); loamy sand; very weak, medium, subangular blocky; very friable, slightly plastic; plentiful, very fine roots; many very fine pores; abrupt, smooth boundary; 0-13 cm thick.
IIC	52+	Dark brown (7.5 YR 3.5/4 m); very gravelly sand; single grain; loose, nonplastic; very few very fine roots.

MAP UNIT: SSX1

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C
Ap	0-29	0.3	0.7	1.3	2.9	5.1	10	69	21
Bm	29-41	0.2	0.6	1.6	3.3	6.3	12	69	19
BC	41-52	8.3	9.5	25.1	33.3	7.0	83	13	4
IIC	52+	21.7	29.5	29.3	10.8	2.0	93	5	2

Horizon	HC† (cm/h)	pH H_2O	pH $CaCl_2$	OM≠ (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K	% Extractable Dithionite Fe	Dithionite Al	Pyrophosphate Fe	Pyrophosphate Al
Ap	144.9	6.0	5.7	5.2	11.8	2.5	0.0	0.8	0.5	0.2	0.3	0.2
Bm	0.4	6.8	6.3	2.9	8.3	2.0	0.0	0.5	0.5	0.2	0.3	0.2
BC		6.6	6.0	0.4	2.3	0.5	0.1	0.1	0.2	0.1	0.1	0.1
IIC		6.6	5.9	0.1	1.4	0.1	0.0	0.2	0.2	0.1	0.1	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Saturated hydraulic conductivity.

≠ Organic matter.

MAP UNIT: SSX4

Location:	20 T KF 96657050	Perviousness:	Moderately
Slope:	1.5%	Stoniness:	None
Site position:	Level	Rockiness:	None
Drainage:	Imperfectly	Present land use:	Abandoned farmland
		Soil classification:	Gleyed Cumulic Regosol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-23	Brown or dark brown (7.5 YR 4/4 m), dark brown (7.5 YR 3.5/4 d); fine, sandy loam; weak, very coarse, subangular blocky; friable; abundant, very fine roots; many fine interstitial pores; clear, wavy boundary; 23-25 cm thick.
Cg1	23-26	Reddish brown (5 YR 5/3 m), light reddish brown (5 YR 6/3 m); loam; common, medium, distinct mottles; very weak, coarse platy; friable; abundant, very fine roots; many very fine interstitial pores; abrupt, smooth boundary; 12-15 cm thick.
Ahb	26-27	Dark reddish brown (5 YR 3/2 m), dark reddish brown (5 YR 2.5/2 d); silt loam; abrupt, smooth boundary; 1-2 cm thick.
Cg2	27-54	Brown (7.5 YR 5/2 m), brown (7.5 YR 5/3 d); loam; many coarse, prominent, strong brown (7.5 YR 5/6) mottles; very weak, very coarse platy; friable; plentiful, very fine roots; many very fine interstitial pores; few medium, local concentrations of spherical, yellowish red (5 YR 4/6), iron-manganese concretions; gradual, irregular boundary; 27-29 cm thick.
Cg3	54-74	Brown (10 YR 5/3 m), brown or dark brown (10 YR 4/3 d); loamy fine sand; many coarse, prominent, yellowish red (5 YR 4/6) mottles; weak, very coarse platy; friable; plentiful, very fine roots; common, very fine interstitial pores; gradual, irregular boundary; 16-22 cm thick.
Cg4	74-82	Brown (10 YR 5/3 m), brown or dark brown (10 YR 4/3 d); fine sandy loam; many medium, prominent, yellowish red (5 YR 4/6) mottles; weak, very coarse platy; friable; plentiful, very fine roots; common, very fine interstitial pores; few medium, local concentrations of oblong, red (2.5 YR 4/6) iron-manganese concretions; clear, wavy boundary; 6-10 cm thick.
IICg1	82-107	Strong brown (7.5 YR 5/6 m), brown (7.5 YR 5/4 d); very gravelly sand; single grain; loose; 80% by volume of dominantly gravel.
IICg2	107-130	Strong brown (7.5 YR 5/6 m); very gravelly sand; single grain; loose; 80% by volume of dominantly gravel.

MAP UNIT: SSX4

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	Water retention† 10	20	60	102	340	1020	3059	15297
Ap	0-23	0.3	1.6	7.2	26.1	19.0	54	30	16	49	46	41	38	36	34	12	9
Cg1	23-26	0.7	0.5	1.2	18.2	31.0	52	37	11						9	6	
Cg2	27-54	0.2	0.1	0.7	13.6	29.8	45	43	12	49	48	45	44	36	31	11	7
Cg3	54-74	0.3	0.4	7.3	51.5	20.0	80	14	6							6	4
Cg4	74-82	0.8	1.2	3.9	42.8	23.3	72	19	9	51	50	43	42	28	24	7	5
IICg1	82-107	20.5	31.9	21.6	14.9	3.6	92	5	3							3	2
IICg2	107-130	25.4	40.4	18.2	8.3	1.9	94	4	2							2	1

Horizon	BD# (g/cm^3)	HC§ (cm/h)	pH $CaCl_2$	OM‖ (%)	Exchangeable cations NaCl (meq/100 g soil) Ca	Mg	Al	K
Ap	1.2	7	4.5	3.2	5.1	0.4	0.1	0.1
Cg1			4.3	1.3	2.9	0.1	1.0	0.1
Cg2	1.2	10	4.3	1.3	3.1	0.1	1.2	0.1
Cg3			4.3	0.9	2.6	0.1	0.5	0.1
Cg4	1.3	16	4.3	1.0	2.4	0.2	0.9	0.1
IICg1			4.5	0.5	1.5	0.1	0.0	0.1
IICg2			4.5	0.3	1.1	0.2	0.0	0.1

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Water retention classes are in centimetres of water tension. Values represent the percentage of water by volume.

Bulk density.

§ Saturated hydraulic conductivity.

‖ Organic matter.

MAP UNIT: TCY2

Location:	20 T LF 09557038	Perviousness:	Slowly
Slope:	3.5%	Stoniness:	None
Aspect:	Southwest	Rockiness:	None
Site position:	Middle slope	Present land use:	Cropland
Drainage:	Imperfectly	Soil classification:	Gleyed Podzolic Gray Luvisol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-20	Strong brown (7.5 YR 4/6 m), brown or light brown (7.5 YR 5.5/4 d); sandy loam; strong, fine to medium, granular; friable, plastic; abundant, medium roots; many medium pores; abrupt, smooth boundary; 19-21 cm thick.
Bf	20-35	Yellowish red (5 YR 4.5/6 m), reddish yellow (5 YR 5.5/6 d); loam; strong, medium, granular; friable, plastic; abundant, fine roots; common, fine pores; abrupt, smooth boundary; 12-18 cm thick.
Aej	35-52	Reddish brown (5 YR 5/4 m), reddish brown or light reddish brown (5 YR 5.5/4 d); gravelly silt loam; moderate to strong, medium, subangular blocky; friable, plastic; few fine roots; few fine pores; 20% angular gravel by volume; gradual, wavy boundary; 11-22 cm thick.
Btgj1	52-77	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm, very plastic; many thin, dark reddish brown (5 YR 3/5) clay films located on ped faces; 30% angular gravel by volume; clear, wavy boundary; 22-29 cm thick.
Btgj2	77-102	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm, very plastic; common, thin, dark reddish brown (5 YR 3/5) clay films located in voids or channels; 30% angular gravel by volume; clear, wavy boundary; 23-27 cm thick.
BC	102-117	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly silt loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm, very plastic; common, thin, dark reddish brown (5 YR 3/5) clay films located in voids or channels; 30% angular gravel by volume; clear, wavy boundary; 12-17 cm thick.
Cg	117-142	Gravelly silt loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; firm, plastic; 30% channers by volume.

MAP UNIT: TCY2

Horizon	Depth (cm)	Particle-size analysis* Sand fraction VCS	CS	S	FS	VFS	TS	SI	C	HC† (cm/h)	pH H_2O	pH $CaCl_2$	OM≠ (%)
Ap	0-20	6.2	10.1	23.6	14.3	5.1	59	29	12		5.4	4.6	2.4
Bf	20-35	4.0	6.7	11.4	14.7	9.5	46	44	10		5.6	4.7	0.6
Aej	35-52	2.7	3.2	4.8	9.3	12.8	33	56	11		5.1	4.4	0.1
Btgj1	52-77	3.4	4.3	8.3	14.1	10.3	46	43	17	0.7	5.5	4.4	0.0
Btgj2	77-102	3.8	5.7	9.5	14.3	9.6	43	40	17		5.4	4.4	0.0
BC	102-117	1.7	2.4	4.1	9.1	14.3	32	64	4		5.5	4.7	0.0
Cg	117-142	1.5	1.7	1.4	4.8	12.0	21	69	10		5.9	5.0	0.0

Horizon	Exchangeable cations (meq/100 g soil) NaCl Ca	NaCl Mg	NaCl Al	NaCl K	NH_4OAc Ca	NH_4OAc Mg	NH_4OAc K	NH_4OAc Na	% Extractable Oxalate Fe	Oxalate Al	Pyrophosphate Fe	Pyrophosphate Al
Ap	2.2	0.1	0.8	0.1	1.7	0.1	0.1	0.1	0.5	0.3	0.3	0.3
Bf	0.5	0.0	0.6	0.1	0.5	0.0	0.0	0.1	0.4	0.5	0.3	0.4
Aej	1.6	0.4	2.4	0.1	1.9	0.4	0.1	0.2	0.2	0.2	0.1	0.1
Btgj1	2.3	0.7	2.6	0.2	3.1	0.6	0.1	0.0	0.1	0.1	0.0	0.1
Btgj2	4.1	0.9	1.6	0.2	4.8	1.4	0.1	0.1	0.1	0.1	0.0	0.1
BC	4.1	0.9	0.2	0.1	6.1	2.7	0.1	0.1	0.1	0.1	0.0	0.0
Cg	4.1	0.9	0.0	0.2	6.5	1.3	0.1	0.1	0.1	0.1	0.0	0.0

* Sand, silt, and clay are expressed as percentages of fine earth (that fraction of whole soil <2 mm in diameter). Sand (TS) is 2-0.05 mm, silt (SI) is 0.05-0.002 mm, and clay (C) is <0.002 mm in equivalent diameter. Very coarse sand (VCS) is 2-1 mm, coarse sand (CS) is 1-0.5 mm, sand (S) is 0.5-0.25 mm, fine sand (FS) is 0.25-0.1 mm, and very fine sand (VFS) is 0.1-0.05 mm.

† Saturated hydraulic conductivity.

≠ Organic matter.

MAP UNIT: BOT2

Location:	20 T LF 11646991	Perviousness:	Slowly
Slope:	1.5%	Stoniness:	None
Aspect:	Level	Rockiness:	None
Drainage:	Poorly	Present land use:	Natural grazing
		Soil classification:	Rego Humic Gleysol

HORIZON	DEPTH (cm)	DESCRIPTION
Of	3-0	Semidecomposed organic matter; many very fine roots; abrupt, smooth boundary; 3-4 cm thick.
Ah	0-12	Olive gray (5 Y 4/2 m), light brownish gray (10 YR 6/2 d); loam; moderate, coarse, subangular blocky; friable.
Cg	12-25	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loam; strong, coarse, subangular blocky; firm.
IICg	25-40	Grayish brown (2.5 Y 5/2 m), light gray (10 YR 7/1 d); sand; single grain; loose.
IIICg	40-56	Gray (5 Y 5.5/1 m), light gray (10 YR 6.5/1 d); silty clay loam; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; massive; firm.
IVCg	56-67	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loamy sand; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; single grain; nonsticky.
VCg	67-81	Dark gray (5 Y 4/1 m), light gray (5 Y 6.5/1 d); silty clay loam; massive; very sticky.
VICg	81-105	Grayish brown (2.5 Y 5/2 w), light gray (10 YR 6.5/1 d); sand; single grain; nonsticky.

MAP UNIT: PRY1

Location:	20 T LF 14606363	Stoniness:	Slightly
Slope:	22.0%	Rockiness:	None
Aspect:	Northeast	Present land use:	Improved pasture
Site position:	Middle slope	Soil classification:	Orthic Humo-Ferric Podzol
Drainage:	Moderately well		

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-22	Dark brown (7.5 YR 3.5/4 m); silt loam; moderate, fine to medium, granular; friable.
Bf	22-36	Yellowish red (5 YR 4.5/6 m); loam; moderate, fine to medium, granular; friable.
Bm	36-51	Yellowish red (5 YR 5/6 m); loam; weak, fine, subangular blocky; friable.
C	51+	Reddish brown (5 YR 4/4 m); loam; massive; firm.

MAP UNIT: TCY2*

Location:	20 T LF 09557038	Perviousness:	Slowly
Slope:	3.5%	Stoniness:	None
Aspect:	Southwest	Rockiness:	None
Site position:	Middle slope	Present land use:	Cropland
Drainage:	Imperfectly	Soil classification:	Gleyed Podzolic Gray Luvisol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-20	Strong brown (7.5 YR 4/6 m), brown or light brown (7.5 YR 5.5/4 d) sandy loam; strong, fine to medium, granular; friable.
Bf	20-35	Yellowish red (5 YR 4.5/6 m), yellowish red or reddish yellow (5 YR 5.5/6 d); loam; strong, fine to medium, granular; friable.
Aej	35-52	Reddish brown (5 YR 5/4 m), reddish brown or light reddish brown (5 YR 5.5/4 d); gravelly silt loam; moderate to strong, medium, subangular blocky; friable.
Btgj	52-77	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; 30% angular gravel by volume.
Btgj2	77-102	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm; 30% angular gravel by volume.
BC	102-117	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly silt loam; few fine, prominent black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm; 30% angular gravel by volume.
C	117-142	Gravelly silt loam; few, fine, prominent black (2.5 YR 2.5/0) mottles; firm, plastic; 30% channers by volume.

* This cultivated site was located near a dip-well site under forest.

HYDROLOGY DATA AND RELATED SOIL PROFILE DESCRIPTIONS

The investigation of soil water regimes in the survey area was initiated in May 1979 and was carried on until October 1982. The program contributed to the Soil Water Investigation Group (Expert Committee on Soil Survey 1982). Data collected assisted in the classification of the soil water regime for the principal soil types.

Dip wells were installed at depths of 50 and 120 cm in 1979. Wells were monitored on a weekly basis from early April until the end of October. Each spring the wells that were deemed unfit were resealed or reinstalled to provide accurate readings and to avoid complications caused by frost heaving.

Installation of the dip wells (Fig. 15) consisted of driving a length of perforated 3.8 cm PVC pipe down an augered hole of a diameter approximately equal to the inside diameter of the pipe, and augering out the soil collected in the pipe. A hole was dug around the deep well to approximately 50 cm, and a seal of bentonite was placed around the pipe to prevent infiltration of water from above. The hole was then carefully backfilled.

The following seven soil profile descriptions for selected slope positions of some map units are presented to assist the reader to evaluate the dip well data portrayed graphically in Figures 15, 16, 17, and 18.

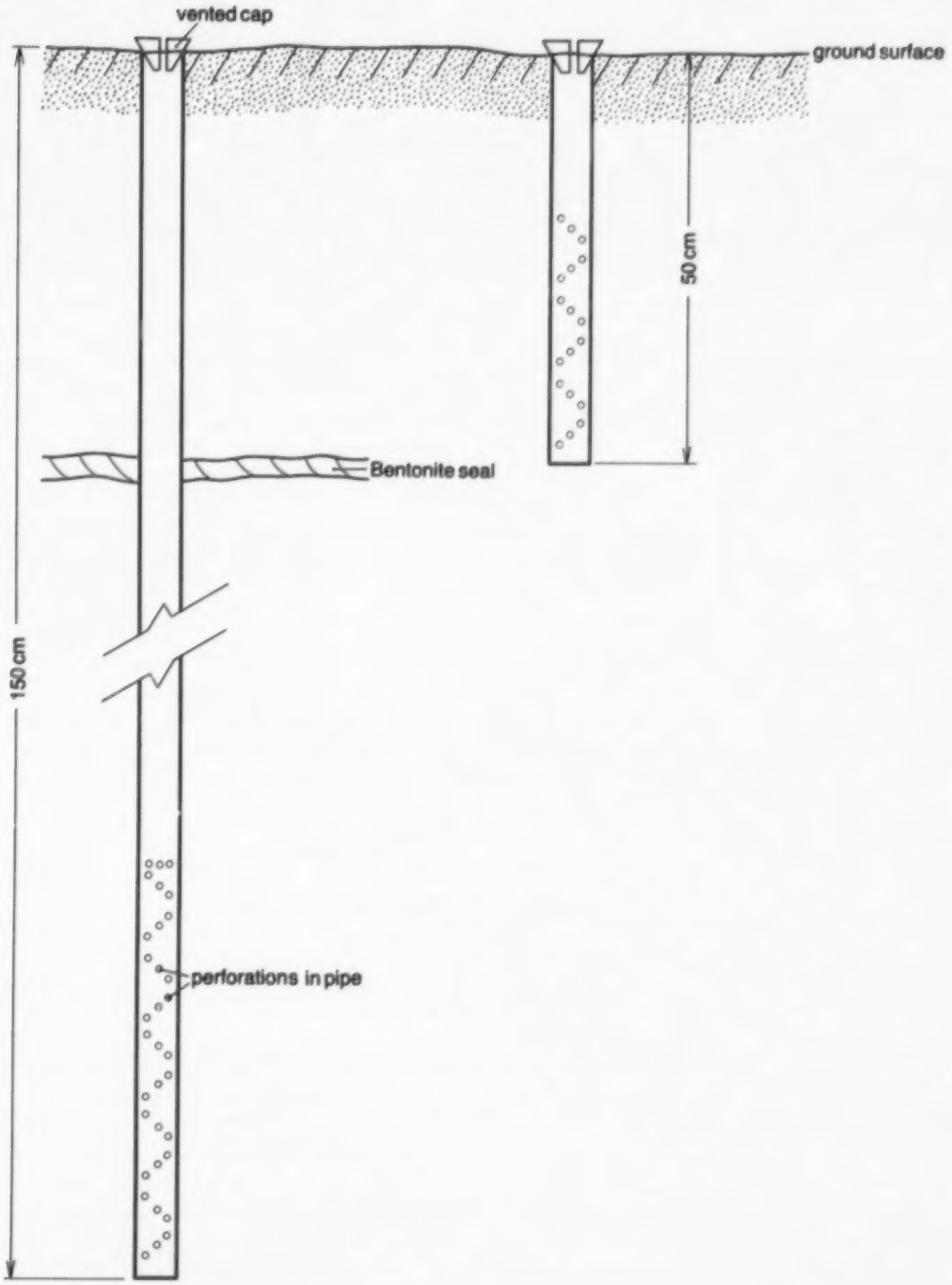


Fig. 15. A schematic representation of a dip-well installation.

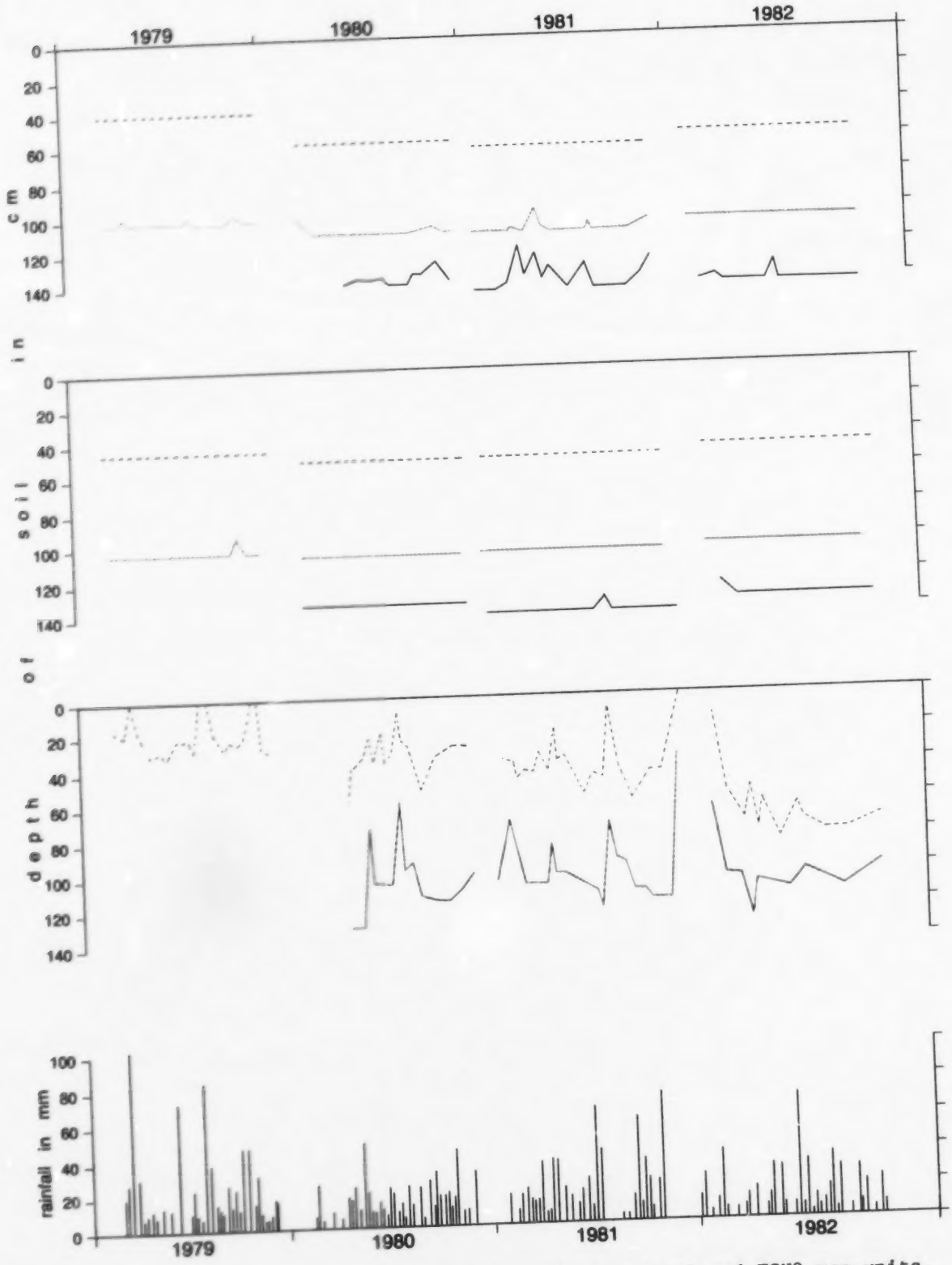


Fig. 16. Dip-well data for PRY1 (middle site position) and TCY2 map units.

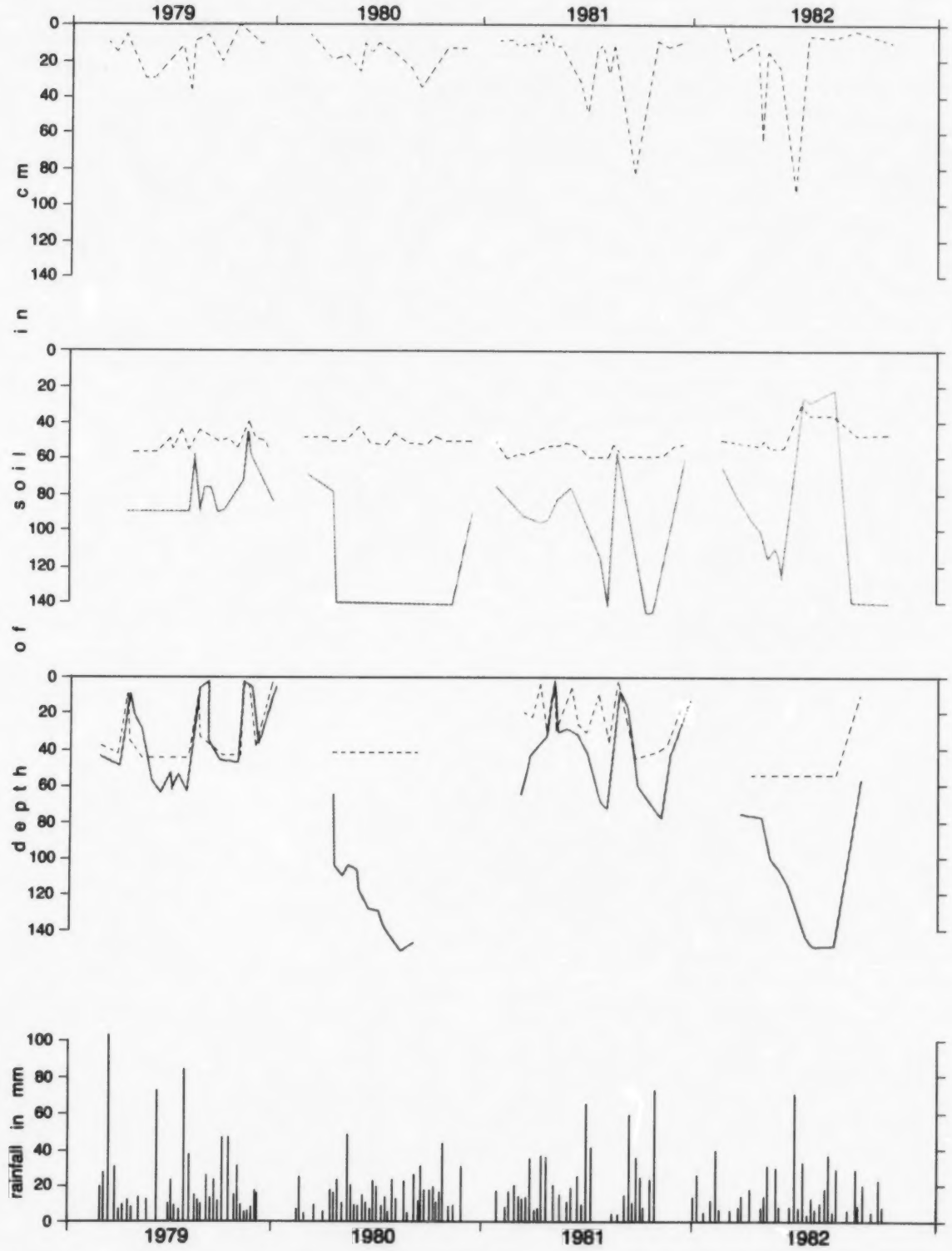


Fig. 17. Dip-well data for BOT2, MUP1, and PAB3 (lower site position) map units.

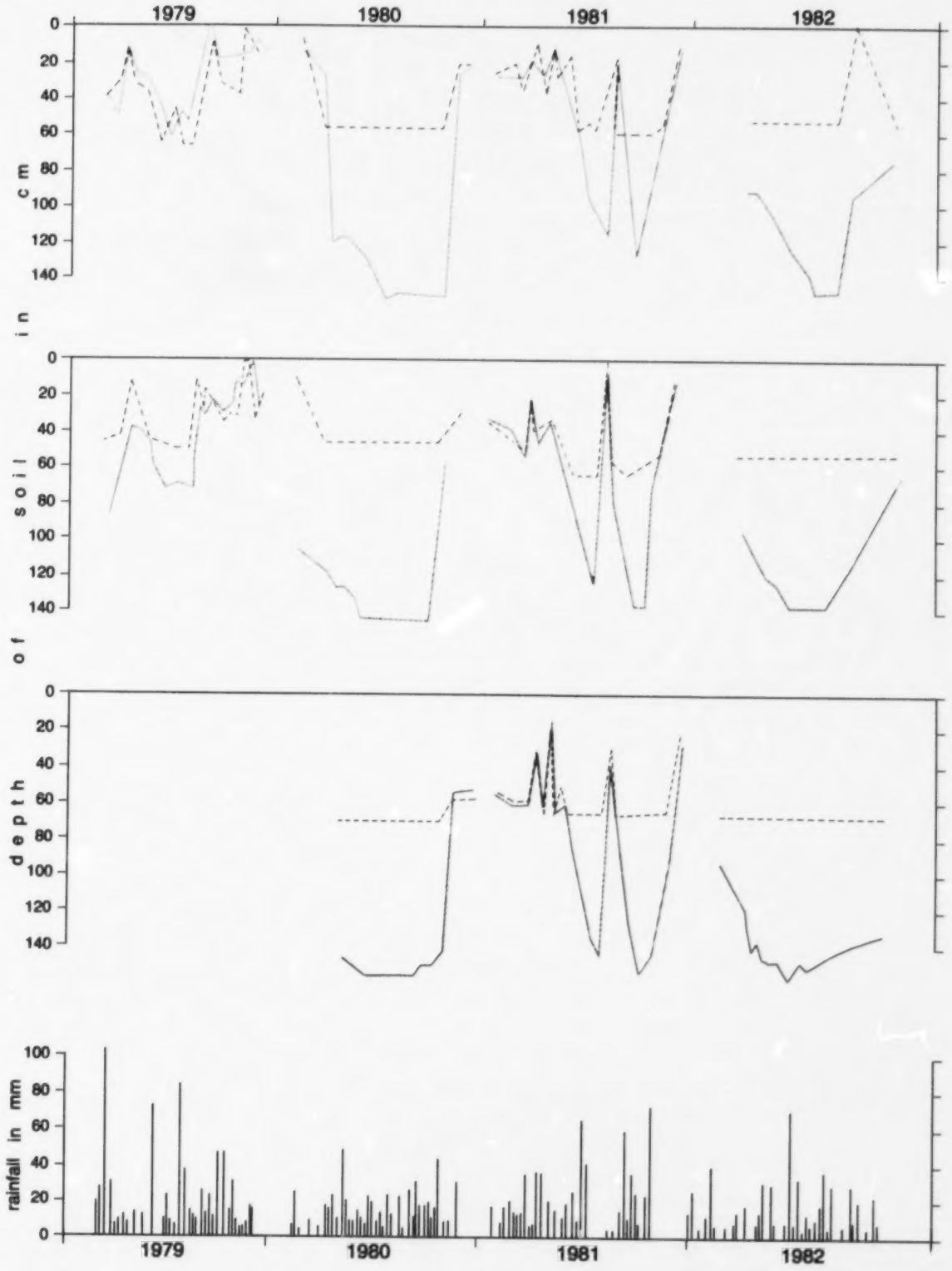


Fig. 18. Dip-well data for PAB3 (middle and crest site positions) map unit.

MAP UNIT: PRY1

Location:	20 T LF 14606363	Stoniness:	Slight
Slope:	22.0%	Rockiness:	None
Aspect:	Northeast	Present land use:	Improved pasture
Site position:	Middle slope	Soil classification:	Orthic Humo-Ferric Podzol
Drainage:	Moderately good		

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-22	Dark brown (7.5 YR 3.5/4 m); silt loam; moderate, fine to medium, granular; friable.
Bf	22-36	Yellowish red (5 YR 4.5/6 m); loam; moderate, fine to medium, granular; friable.
Bm	36-51	Reddish brown (5 YR 4/4 m); loam; weak, fine, subangular blocky; friable.
C	51+	Reddish brown (5 YR 4/4 m); loam; massive; firm.

MAP UNIT: TCY2*

Location:	20 T LF 09557038	Perviousness:	Slow
Slope:	3.5%	Stoniness:	None
Aspect:	Southwest	Rockiness:	None
Site position:	Middle slope	Present land use:	Cropland
Drainage:	Imperfect	Soil classification:	Gleyed Podzolic Gray Luvisol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-20	Strong brown (7.5 YR 4/6 m), brown or light brown (7.5 YR 5.5/4 d) sandy loam; strong, fine to medium, granular; friable.
Bf	20-35	Yellowish red (5 YR 4.5/6 m), yellowish red or reddish yellow (5 YR 5.5/6 d); loam; strong, fine to medium, granular; friable.
Aej	35-52	Reddish brown (5 YR 5/4 m), reddish brown or light reddish brown (5 YR 5.5/4 d); gravelly silt loam; moderate to strong, medium, subangular blocky; friable.
Btgj	52-77	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; 30% angular gravel by volume.
Btgj2	77-102	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly loam; few fine, prominent, black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm; 30% angular gravel by volume.
BC	102-117	Dark red (2.5 YR 3/6 m), reddish brown (5 YR 4.5/4 d); gravelly silt loam; few fine, prominent black (2.5 YR 2.5/0) mottles; strong, medium to coarse, subangular blocky; firm; 30% angular gravel by volume.
C	117-142	Gravelly silt loam; few, fine, prominent black (2.5 YR 2.5/0) mottles; firm, plastic; 30% channers by volume.

* This cultivated site was located near a dip-well site under forest.

MAP UNIT: BOT2

Location:	20 T LF 11646991	Perviousness:	Slow
Slope:	1.5%	Stoniness:	None
Aspect:	Level	Rockiness:	None
Drainage:	Poor	Present land use:	Natural grazing
		Soil classification:	Rego Humic Gleysol

HORIZON	DEPTH (cm)	DESCRIPTION
Of	3-0	Semidecomposed organic matter; many very fine roots; abrupt, smooth boundary; 3-4 cm thick.
Ah	0-12	Olive gray (5 Y 4/2 m), light brownish gray (10 YR 6/2 d); loam; moderate, coarse, subangular blocky; friable.
Cg	12-25	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loam; strong, coarse, subangular blocky; firm.
IICg	25-40	Grayish brown (2.5 Y 5/2 m), light gray (10 yr 7/1 d); sand; single grain; loose.
IIICg	40-56	Gray (5 Y 5.5/1 m), light gray (10 YR 6.5/1 d); silty clay loam; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; massive; firm.
IVCg	56-67	Olive gray (5 Y 5/2 m), light gray (10 YR 7/1 d); loamy sand; many coarse, prominent, strong brown (7.5 YR 5/8) mottles; single grain; nonsticky.
VCg	67-81	Dark gray (5 Y 4/1 m), light gray (5 Y 6.5/1 d); silty clay loam; massive; very sticky.
VICg	81-105	Grayish brown (2.5 Y 5/2 w), light gray (10 YR 6.5/1 d); sand; single grain; nonsticky.

MAP UNIT: MUP1

Location:	20 T LF 11556886	Stoniness:	Slightly
Slope:	2.5%	Rockiness:	None
Aspect:	North	Present land use:	Productive woodland
Site position:	Upper	Soil classification:	Podzolic Gray Luvisol
Drainage:	Moderately well		

HORIZON	DEPTH (cm)	DESCRIPTION
LF	1-0	
Ahe	0-14	Dark brown (7.5 YR 3.5/4 m), very pale brown (10 YR 7/3 d); loam; moderate, coarse, granular; friable.
Ae	14-16	Reddish brown (5 YR 5/3 m), pinkish gray (7.5 YR 7/2 d); loam; moderate, fine subangular blocky; very friable.
Bm	16-26	Strong brown (7.5 YR 4/6 m), brown (7.5 YR 5/4 d); clay loam; moderate, fine to medium, granular; friable.
IIBt1	26-51	Reddish brown (5 YR 4/4 d); silty clay loam; strong, coarse, subangular blocky; very firm.
IIBt2	51-95	Reddish brown (5 YR 4/4 d); clay; weak to moderate, medium, prismatic; very firm.
IICg1	95-120	Reddish brown (5 YR 4/3 d); clay loam; few medium, distinct, strong brown (7.5 YR 4.5/6) mottles; strong, very coarse, subangular blocky; very firm.
IICg2	120-145	Reddish brown (5 YR 4/3 d), clay loam; few medium, distinct, strong brown (7.5 YR 4.5/6) mottles; strong, very coarse, subangular blocky; very firm.

MAP UNIT: PAB3

Location:	20 T LF 05875925	Stoniness:	None
Slope:	4.0%	Rockiness:	None
Aspect:	Southeast	Present land use:	Improved forage
Site position:	Lower slope	Soil classification:	Gleyed Dystric Brunisol
Drainage:	Imperfectly		

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-23	Brown or dark brown (7.5 YR 4/4 m); loam; weak, fine to medium, subangular blocky; friable.
Bmg	23-43	Reddish brown (5 YR 4/4 m), sandy clay loam; common, fine, prominent, strong brown (7.5 YR 5.5/8) mottles; weak, fine to medium, subangular blocky; friable.
C1	43-64	Dark reddish brown or reddish brown (5 YR 3.5/3 m); sandy clay loam; massive; firm.
C2	64+	Reddish brown (5 YR 4.5/3 m); sandy clay loam; massive; firm.

MAP UNIT: PAB3

Location:	20 T LF 05755925	Stoniness:	None
Slope:	9.0%	Rockiness:	None
Site position:	Middle slope	Present land use:	Improved forage
Drainage:	Imperfectly	Soil classification:	Gleyed Sombric Brunisol

HORIZON	DEPTH (cm)	DESCRIPTION
Apgj	0-22	Dark brown (7.5 YR 3/4 m); silt loam; many medium, prominent, yellowish red (5 YR 5/8) mottles; moderate, medium, subangular blocky; friable.
Bmg	22-34	Strong brown (7.5 YR 5/6 m); silt loam; weak, medium, subangular blocky; friable.
C	34+	Reddish brown (5 YR 4/4 m); clay loam; massive; firm.

MAP UNIT: PAB3

Location:	20 T LF 05505925	Perviousness:	Slowly
Slope:	9.0%	Stoniness:	Slightly
Aspect:	Southeast	Rockiness:	None
Site position:	Crest	Present land use:	Improved forage
Drainage:	Moderately well	Soil classification:	Orthic Humo-Ferric Podzol

HORIZON	DEPTH (cm)	DESCRIPTION
Ap	0-18	Dark brown (7.5 YR 3/4 m); loam; moderate medium, subangular blocky; friable 20% by volume of dominantly angular gravel.
Bf	18-46	Strong brown (7.5 YR 4.5/6 m); loam; weak, medium, subangular blocky; friable 20% by volume of dominantly angular gravel.
IIC	46+	Reddish brown (5 YR 4/4 m); gravelly clay loam; massive; firm; 30% by volume of dominantly angular gravel.

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MAP UNIT LEGEND

Map symbol	Map unit name	Soil material	Drainage classes		Surface stoniness	Surface bedrock exposure
			Dominant	Significant		
AGC1	Anagance	More than 100 cm of very friable brown or yellowish brown morainal gravelly sand or gravelly loamy sand	Well	--	1	0
BOT1	Bottomland	More than 100 cm of friable and firm olive gray to grayish brown stratified fluvial silty clay loam or silt loam, with loamy sand or sand lenses	Imperfectly	Poorly	0	0
BOT2			Poorly	Very poorly		
ERB1	Erb Settlement	50-100 cm of friable brown or dark brown morainal gravelly silt loam or gravelly loam, over shale bedrock	Moderately well		1 or 2	0
ERB2		50-100 cm of friable brown or dark brown morainal gravelly silt loam, over shale bedrock	Imperfectly	Moderately well		
ERB3		50-100 cm of friable brown or dark brown morainal gravelly silt loam or gravelly loam, over shale bedrock	Poorly			
G	Gullies	Sides of gullies have material similar to surrounding soils; bottoms are stratified and finer textured. Drainage ranges from rapid on sides to imperfect or poor on bottoms			Variable	Variable
GGW1	Gagetown	0-50 cm of very friable sandy loam gravelly sandy loam or gravelly silt loam, over glaciofluvial gravelly or very gravelly sand or loamy sand	Rapidly		0	0

GGW2		0-50 cm of very friable sandy loam or loam, over glaciofluvial gravelly or very gravelly sand or loamy sand	Imperfectly			
GGW3		50-100 cm of very friable sandy loam or gravelly sandy loam, over glaciofluvial gravelly or very gravelly sand or loamy sand	Well			
JEF1	Jeffries Corner	More than 100 cm of friable dark reddish brown or reddish brown morainal gravelly sandy loam or gravelly loam	Well		1	0
JEF2			Moderately well	Imperfectly		
JEF3			Imperfectly			
KGV1	Knightville	20-50 cm of friable loam to silty clay loam, over firm or very firm dusky red to reddish brown morainal silty clay loam or silty clay	Moderately well		0 or 1	0
KGV2			Imperfectly			
KGV3			Poorly			
KNC1	Kennebecasis	0-50 cm of very friable sandy loam, over very friable or loose reddish brown glaciofluvial sand or loamy sand	Well or moderately well		0 0 or 1	0 0
LMD1	Lomond	More than 100 cm of friable brown or dark brown morainal gravelly or very gravelly sandy loam or silt loam	Well		1 to 3	0
LMD2			Well	Imperfectly		
MUP1	Mount Hope	20-50 cm of friable loam to silty clay loam, over firm or very firm reddish brown glaciolacustrine silty clay loam or silty clay	Moderately well		0	0

Map symbol	Map unit name	Soil material	Drainage classes		Surface stoniness	Surface bedrock exposure
			Dominant	Significant		
MUP2			Imperfectly			
MUP3		20-50 cm of friable silt loam or silty clay loam, over firm or very firm reddish brown glaciolacustrine silty clay loam or silty clay	Poorly			
PAB1	Parsons Brook	20-50 cm of friable sandy loam or loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Moderately well		1	0
PAB2		20-50 cm of friable sandy loam, silt loam, or loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Moderately well	Imperfectly		
PAB3		20-50 cm of friable sandy loam, loam, or gravelly loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Imperfectly			
PAB4		20-50 cm of friable sandy loam or loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Imperfectly	Poorly	1	0
PAB5		20-50 cm of friable silt loam, sandy loam, or loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Poorly			
PAB6		50-100 cm of friable sandy loam or loam, over firm or very firm reddish brown or dark reddish brown morainal nongravelly or gravelly loam or clay loam	Moderately well			

PAB7		50-100 cm of friable sandy loam, loam, or gravelly sandy loam, over firm or very firm reddish brown or dark reddish brown morainal non-gravelly or gravelly loam or clay loam	Imperfectly			
PEV1	Parlee-ville	20-50 cm of very friable reddish brown or dark reddish brown morainal gravelly sandy loam or gravelly loam, over conglomerate bedrock	Well		1	0 or 1
PEV2		20-50 cm of loose red-dish brown or dark reddish brown morainal very grav-elly sandy loam or very gravelly loamy sand, over conglomerate bedrock	Rapidly			
PEV3		50-100 cm of very friable reddish brown or dark reddish brown morainal gravelly loamy sand, gravelly sandy loam, or gravelly silt loam, over conglomerate bedrock	Well			
PEV4		50-100 cm of very friable reddish brown or dark reddish brown morainal very grav-elly sandy loam or very grav-elly loamy sand, over con-glomerate bedrock	Rapidly			
PEV5		50-100 cm of very friable reddish brown or dark reddish brown morainal gravelly or very gravelly sandy loam or silt loam, over conglomerate bedrock	Well	Imperfectly		
PRY1	Parry	20-50 cm of friable loam, gravelly loam, or gravelly silt loam, over firm dark reddish brown or reddish brown morainal nongrav-elly or gravelly sandy loam or loam	Moderately well		1	0

Map symbol	Map unit name	Soil material	Drainage classes		Surface stoniness	Surface bedrock exposure
			Dominant	Significant		
PRY2		20-50 cm of friable sandy loam, loam, or gravelly sandy loam over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Moderately well	Imperfectly		
PRY3		20-50 cm of friable loam or gravelly silt loam, over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Imperfectly			
PRY4		50-100 cm of friable nongravelly or gravelly sandy loam or loam, over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Moderately well		1	0
PRY5		50-100 cm of friable gravelly loam or gravelly sandy loam, over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Moderately well	Imperfectly		
PRY6		50-100 cm of friable sandy loam, loam, or gravelly sandy loam, over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Imperfectly			
PRY7		20-100 cm of friable silt loam, gravelly sandy loam, or gravelly loam, over firm dark reddish brown or reddish brown morainal nongravelly or gravelly sandy loam or loam	Poorly			
SAP1	Saltsprings	20-75 cm of friable silt loam or gravelly silt loam, over firm or very firm brown or dark brown morainal, gravelly, or nongravelly silt loam or silty clay loam	Moderately well		1	0

SAP2		20-75 cm of friable silt loam, loam, or gravelly silt loam, over firm or very firm brown or dark brown morainal gravelly or nongravelly silt loam or silty clay loam	Imperfectly		
SAP3			Poorly		
SSX1	Sussex	0-50 cm of very friable sandy loam or silt loam, over loose or very friable reddish brown fluvial sand and gravel	Moderately well	0	0
SSX2			Imperfectly		
SSX3		50-100 cm of very friable sandy loam or silt loam, over loose or very friable reddish brown fluvial sand and gravel	Moderately well		
SSX4			Imperfectly		
SSX5		0-100 cm of very friable sandy loam, silt loam, or loam, over loose or very friable reddish brown fluvial sand and gravel	Poorly		
TCY1	Tracy	More than 100 cm of friable dark red morainal sandy loam, loam, or gravelly loam, over sandstone or mudstone bedrock	Moderately well	0 or 1	0
TCY2		More than 100 cm of friable dark red morainal loam or gravelly loam, over sandstone or mudstone bedrock	Imperfectly		

MAPS
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